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COTTON

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Bradford Advertises Its Fast-Color Process — *thanks to Kaumagraphs*

[*Based on an interview with an official of the Bradford Dyeing Association (U. S. A.)*]

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* * *

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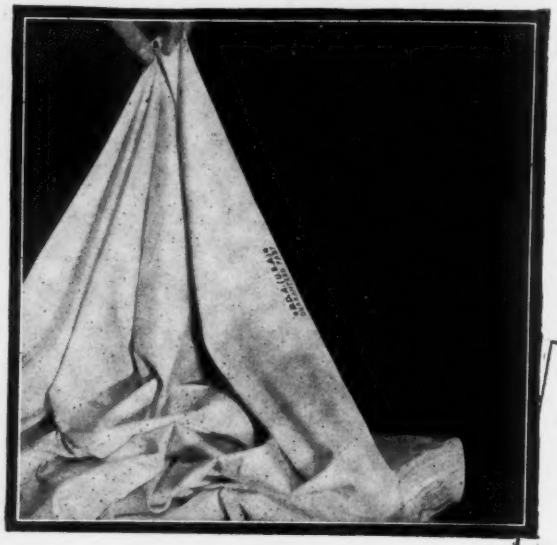

Above: Photo shows how Kaumagraph-applied process mark of Bradford Dyeing Association (U. S. A.) appears on Bradford **FAST COLOR** fabrics. At right: Typical Bradford advertisement showing how this company is teaching the public to look for its Kaumagraph-applied process mark. Bradford's board end labels are also obtained from the Kaumagraph Company, through its lithographic department.

KAUMAGRAPH CO.

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COTTON

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To weavers and knitters

What are the advantages to you in buying CELANESE brand yarn ?

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2 They are extremely elastic.
3 More loom production, because of regularity, elasticity, and, therefore, less loom stoppage.
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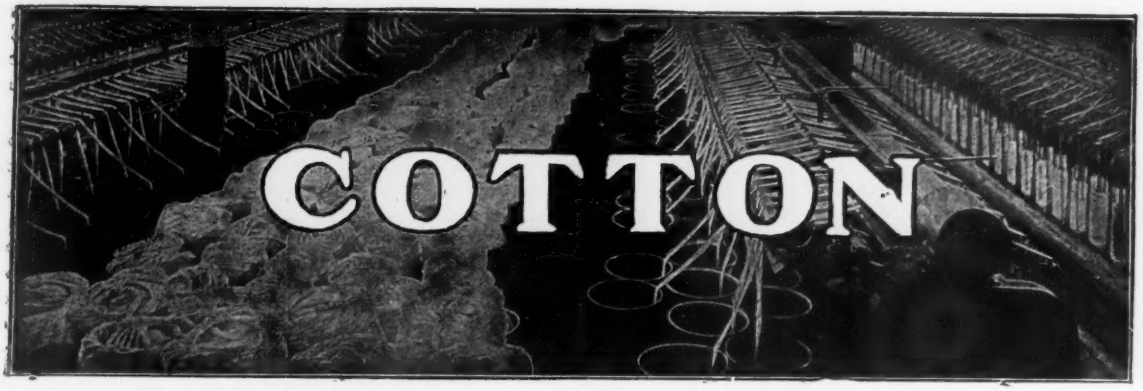


August, Nineteen-Twenty-Six

Our Slipping Shipping

The United States Shipping Board summarily dismisses another chief of its Emergency Fleet Corporation and prepares to sell its most conspicuous fleet of operating vessels, those in the United States lines. When these are sold the board still will have in operation around 200 vessels, mostly of the cargo type. It still has on hand seven to eight hundred laid up ships.

Meantime, the proportion of American foreign trade moving in American flag ships declines. For the quarter ending March 31, this year, foreign vessels carried 73 per cent of our exports and brought in 60 per cent of our imports, this in the face of the spending of nearly four billion dollars during the last ten years "to establish an American merchant marine." The proportion of both thus carried steadily increases, though practically all that is handled by Shipping Board vessels is carried at less than cost of operations.

So something far more fundamental than commonly recognized must be involved in the merchant marine problem. It also seems patent that the mere spending of money, no matter how much, will not establish a merchant marine.

Yet the Shipping Board goes on—at a net cost of around $25,000,000 a year. And it will go on probably until the last of the ships the Government built has rotted away.

The Politics of the Year

Upon the farm situation, with the tariff in the back ground, this year's national campaign and election are apt to turn. Mid-western farmers, says their leaders, are in an ugly mood, and, if so, anything may happen. They gave some indication of their temper when those in Iowa rallied to the belligerent Brookhart against that once personification of the mid-western idea, Albert B. Cummins. Brookhart, no doubt, will be returned to the Senate from which he was thrust not long ago. Someone of similarly radical turn of mind is apt to be sent to the Senate from Wisconsin as Lenroot's successor. Nye, the young Nonpartisan Leaguer from North Dakota, has been nominated and probably will be elected for a full term. Norris of Nebraska holds over, as does Shipstead of Minnesota, and La Follette. These comprise the extreme radical group of the Upper House of Congress. The group is apt to be stronger in the next Congress. And that is about the only certain prediction which can be made.

It is not beyond the unlikely that the nominal party color of the Senate will be changed in the election, and it is possible, though not so likely, that there will be a similar over-turning in the House of Representatives.

In fighting for Senatorships this year, the Democrats have most of the advantages. None of that party's Senators are up for re-election in other than safe southern states. Several upheavals which may inure to the Democrats have occurred in Republican primaries. Conservative Republicans in Iowa may again get revenge on Brookhart by electing another Democrat, but this is improbable. Brennan flying the "wet" banner in Illinois, may win over Smith, who won no affection from many thousands of Republicans in that state by defeating the stalwart McKinley in the primary. William M. Butler will have a hard fight in Massachusetts against former Senator David I. Walsh, a Democrat. And a Republican senator is up in Arizona, usually Democratic, and the mighty Watson in Indiana may be riding to a fall. The only way Pennsylvania can escape Vare, whom the Senate has threatened to exclude from its sacred precincts if he should be elected, is to do something that state has not done since the Civil War—elect a Democratic United States Senator. Incidentally one wonders if there would be all the howling about the Pennsylvania slush funds had the saintly Pepper, for whom the biggest "pile" was used, been the victor.

Judging by the recent record it doesn't make much difference as to which party, as such, wins the Senate. Real party lines there are as vague as the azimuths. There will be more meaning in the kind of men elected, regardless of whether labeled as Democrats or Republicans. That is, in so far as what the Senate does goes.

Such an eventuality may have a meaning of importance as to the future. It might spell the waning of Coolidge—as the defeat of several outstanding adherents of the President have been interpreted in some quarters. Despite these latter, however, Coolidge seems to hold his own, except possibly among the mid-western farming element.

That element is quite patently out for trouble. Whether it will continue so to be until the Presidential campaign two years hence is doubtful. Conditions will change, and the farmers are likely to come to the realization that their grievances owe more to faulty leadership of their own than to any lack of sympathy for them anywhere. Their

leaders have been promising them the moon and so insistently that those who might have provided intelligent aid in meeting their difficulties could do virtually nothing.

If they should win both Houses of Congress and manage to pacify the radical elements of both parties, the Democrats could make a lot of trouble by way of developing campaign material for 1928. Those among them in Congress who hold to the traditional principles of the party would begin, no doubt, to blaze away at the protective tariff, which in any event is apt to be the big issue in the next Presidential race.

This former and sole basic principle of difference between the two big parties is, like all things else political, beset by confusion as to alignments. Probably the most aggressive protectionist sentiment is now in quarters that are Democratic, notably much of the industrial South. Conversely, the most formidable free trade sentiment is in quarters preponderately Republican. Opinion of bankers heavily interested in foreign investments are trending towards low tariffs so that collection will be easier. So are some manufacturing groups, notably that having to do with automobiles, which are free of foreign competition in the domestic market and look largely to the foreign field for further expansions.

So it goes. The next tariff bill may be a joint product of the parties, like the recent Federal tax act.

The tariff may be obscured two years hence by the prohibition issue, which regardless of what one thinks of the question that is involved, is to be fought out again at sometime in the future. Discussion of this seemingly "settled" problem filled more space in the Congressional Record during the recent session than in all the sessions during the five years preceding the adoption of the Eighteenth Amendment.

And if a long-shot prediction is permissible, the issue will be fought out ultimately on the basis of a re-submission of the amendment. The question will figure only locally in this year's elections.

This isn't apt to be of itself alone a notable year for politics or to bring forth nationally anything that is revolutionary. What occurs this year, however, may be preliminary to much that, later, will be at least—intensely interesting.

Manufacturing's Surplus Problem.

During the last thirteen years the country's population increased about 16 per cent and facilities for manufacture about 30 per cent. Assuming that manufacturing facilities operate on the 1913 time basis, it follows that growth of consumption for manufactures should have been at twice the rate of increase in population.

Much of the growth in manufacturing facilities owes to war conditions, which brought about abnormal demand. Use of some of the excess has been sustained by a continuance of a portion of the added foreign demand caused largely by war conditions.

Yet manufacturing as a whole faces a surplus problem not unlike that about which agriculture has been complaining. This manufactures surplus has produced exaggerated forms of competition in several lines and has been provocative of much waste on high-pressure selling methods and in other ways. No doubt it explains, more than all else, the rise of instalment selling to a point that may be threatening. Consumption tends to out-distance buying power, yet it may be doubted if consumption as a whole has increased very much. It has been modified, by expansions in some directions and retardations in others, more than it has been enlarged.

The solution of the surplus problem may lie in the curbing of production by means other than shutting down factories and laying off workers, which cuts consumption out of ratio to reduction of production.

It is probable that too much of the expanded facilities for manufacture are devoted to non-essentials. The managers of those devoted to essentials may be too loath to assert their first claim on the consumptive support of the public. The public is being over-stimulated—by superselling processes employed by the producers of non-essentials—with the philosophy summed up in a poet's epigram. "Give me the luxuries and you can keep the necessaries."

The necessaries and facilities for procuring them are what we must have in a pinch.

Too Much Distribution

Numerous cities are adopting zoning systems whereby curbs are placed on the exploitation of real estate for business use, notably retailing. While the principal aim is to protect residence districts against needless invasion by business establishments, the effect on the limiting of retail stores should be hightly beneficial. One of the just complaints of the time is that the distribution of the necessities of life costs too much and tends to advance out of ratio to other costs. One reason for this is the over-multiplying of retail stores. In the large cities there are too many retailers in virtually every line of business, most especially so in that having to do with foodstuffs.

It is stated authentically that more than 90 per cent of retail establishments fail within a tragically short period of time, most of them within ten years. The public pays the cost of this waste, due to too many entering the field and to the ease with which incompetents can get into it. What makes most for this is an inclination on the part of real estate owners to dedicate every bit of property that can be rented as such to business use. A survey of one big retailing line showed recently that more than one-fourth of the volume of money taken in by merchants in that line went to store expenses. High retailing costs owes largely to the small units in which much of retailing is carried on.

Curiously, there are no inclusive data of a nation-wide character on which generalizations as to the retail distribution problem can be founded. For many years the Government has taken a census of manufactures, by which all elemental data concerning this branch of the country's life are gathered and set forth, now every two years. A census of agriculture is now taken every five years.

But no census of retailing ever has been taken. No one knows exactly how many stores there are in any line, or the full facts as to capital investment, average turn-over, costs and profits.

A full census of retail distribution should be taken. No doubt one would show that many evils now regarded as lying elsewhere, arise almost wholly out of faults in that sphere.

As They Do It In Japan

BY BURTON CRANE
Commercial Editor, The Japan Advertiser, Tokyo.

Twenty years ago the Kanegafuchi Spinning Company was on the verge of bankruptcy. Its debts were heavy. Japan had had several lean years and the cotton export market was in poor shape. The case seemed hopeless, so a "young man with ideas" was given a chance to show what he could do.

Since he was given his chance, Mr. Sanji Muto, who smiles and waves a protesting hand when he is called the "Henry Ford of Japan," has brought the company to an

"Henry Ford of Japan"

The Hon. Sanji Muto, M. P., most successful practical idealist of Japan and head of its largest cotton enterprise, the Kanegafuchi Spinning Company. He is a great admirer of Henry Ford and, during the 20 years of his management of the Kanegafuchi Company, has never had an hour of labor trouble.

astonishing state of development and prosperity. It is now the largest manufacturing company in the Empire, has 17 cotton spinning and weaving plants in addition to numerous silk filatures and rayon factories, and for eight successive half-year terms, commencing with the first half of 1918, paid dividends at the rate of 70 per cent a year. Kanebo, as the Kanegafuchi company is known familiarly in financial circles, has 522,788 cotton spindles, 10.65 per cent of the total number in the Empire; 8,205 cotton looms, 12.5 per cent of the nation's total, and employs 26,563 male and female operatives in its cotton enterprises.

But the most remarkable fact about this remarkable man and his great company is that, in the 20 years in which he has been at the helm, Kanebo has never had an hour of labor trouble. This record was established in spite of the seven-day week, with two eleven and a-half hour shifts, which is the rule in Japan's cotton plants, in spite of the ever-growing class consciousness of the workers, which has cropped out in strikes without number in other factories, and in spite of the average wage of Yen 1.40 per day for women and Yen 2.00 per day for men (66 cents and 95 cents) which he now pays.

Sanji Muto believes in free speech in industry and around this principle his success has been built. No executive in any Kanegafuchi plant must ever be too busy to talk things over with his subordinates. There must be no officious underlings guarding his door. It must be open always and a cordial welcome must be beyond it. No Kanebo employee has ever been discharged for "kicking to the boss". It is his right to do so and that right is carefully preserved.

In every Kanegafuchi plant there are two locked boxes for suggestions and complaints. One is addressed to the plant manager, who opens it and deals with its contents at weekly intervals. The persons affected, including the complainant, if he be such, are summoned and the situation

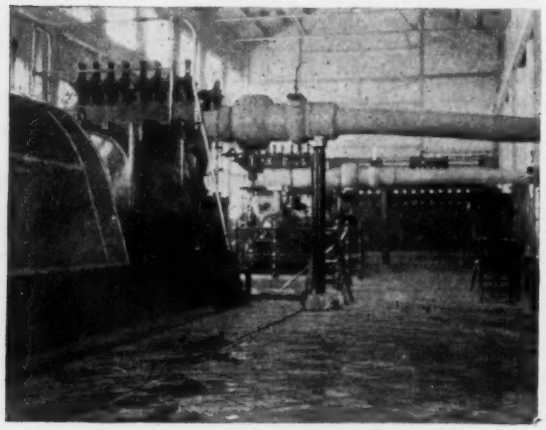
"Father" of Forty-Three Hundred.

S. Hashizume, manager, left, is responsible for the great family of Kanegafuchi Spinning Company workers at its Tokyo main plant. The attitude of the company toward its hands is paternal to the last degree and this snowy-haired pater familias is a joyful exponent of the principles of Sanji Muto, Japan's greatest businessman-humanitarian. The other gentleman in the picture is N. Tanaka, who guided the representative of COTTON on his visit to the plant.

thrashed out. If there is an abuse or a condition which lies in the power of the plant manager to remedy, he does so. The other box is addressed to President Muto himself and only he may open it. In case he is unable to come from the head office at Hyogo to do so, the box is sent to him, opened and returned. If any employee wishes to speak to him upon one of his periodic visits, he may do so. If the case is acute, the company may even undertake to send him to Hyogo to interview the President. But such cases are rare. Continual free speech and the manifest willingness of the company to "make things right", over a period of 20 years, have eliminated most of the possible sources of friction. Wages are as high as in

any similar mill of Japan. Working hours are no longer. Conditions, generally speaking, are vastly better. There are no smouldering fires in Kanebo. But let us take a look at the most successful practical idealist in Japan.

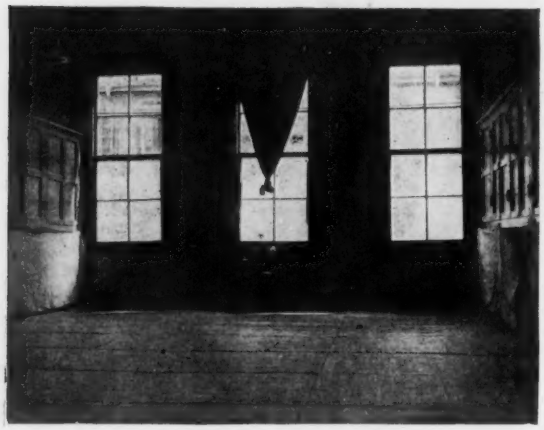
Sanji Muto was born in 1867 in Gifu Prefecture, about midway between Tokyo and Osaka, in the heart of Japan's great silk district. He was the son of Kunizaburo Sakuma, a former member of the Diet. In accordance with a custom which has prevailed in the country from time immemo-



General Electric Turbo-Generators in the Power Plant.

rial, young Sanji was adopted into the Muto family, which was connected with his own, there being no male heir to carry out the line. (Because of this custom, families never die out in Japan. It is understood that Prince Kunihide Kuni, 17-year-old brother of the Crown Princess, is shortly to be adopted in like manner).

In 1885 Sanji Muto was graduated from the Keio

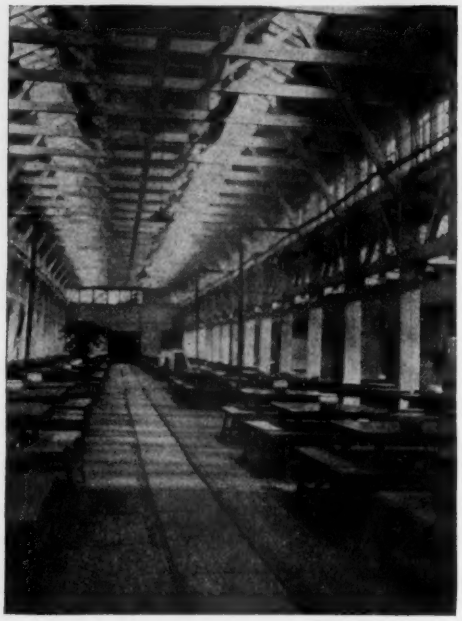


Interior of a Dormitory Room. Note the Lockers at the Sides. The "Tatami" or Straw Mats on the Floor are about three inches thick.

Gijuku, the forerunner of the present Keio University, and departed for a two-year trip to the United States, where he was an earnest student of banking and business methods. Upon his return he was successful in the competitive examinations for a position with the Mitsui Bank and remained with the concern for ten years, winning considerable commendation for his executive ability. At the end of this period he was transferred to another of the many interests of the great Mitsui family, this time the Mitsui Bussan Kaisha, perhaps the largest of the importing and exporting companies of the Empire. He was made superintendent of the cotton yarn department.

It was at about this time, 1905, when the Kanegafuchi Spinning Company was on the point of foreclosure, that Heizaemon Hibiya, president and founder of the firm, offered Mr. Muto a position as manager of the Hyogo branch. He accepted, to become managing director a year later. A few years later Mr. Hibiya died and Mr. Muto became president.

Mr. Muto is a political as well as a business leader, being a member of the House of Representatives in the Imperial Diet and the founder and leader of the Jitsugyo-Doshikai, or Businessmen and Industrialists' Party, which he formed in 1921. It now has nine seats in the Lower House, but through a coalition with the Seiyuhonto, one



The Dining Room. Note the track down the center on which handcars run to convey the food.

of the three largest groups, is expected to greatly increase its influence in the next general elections.

Mr. Muto represented Japanese capitalists at the first labor conference of the League of Nations in Geneva and was given the decoration of the Blue Ribbon by the Japanese Government in 1911 for meritorious services in connection with the development of the nation's cotton spinning industry.

One of his most recent accomplishments was the authorship of The Book of Business, or "Jitsugyo Tokuhon", which appeared from his pen last year. It is already in wide use as a textbook in the commercial and industrial schools of Tokyo and other cities and has been highly recommended by the Department of Education. This work has solidified his reputation with the younger generation as the most worthy model in the present dynasty of Japanese business.

An admirer of Henry Ford, Andrew Carnegie and Lord Salisbury, Mr. Muto has adopted methods and policies from all three. Lord Salisbury's motto: "Polities is business", is now the motto also of Mr. Muto's party. The

Dormitory.

Three thousand girl employees of the Kanegafuchi Spinning Company are housed in dormitories such as these at its Tokyo plant. This picture was taken shortly after the plant had been rebuilt, following the disastrous earthquake and fire of 1923. Many trees, some of considerable size, were transplanted to the grounds to make them pleasant for the workers.

book, however, holds Japanese business methods and ethics up to a searching examination, asserting that the nation needs a higher conception of honor to stand as an equal in international commercial morals and a more efficient and progressive attitude toward the solution of production problems.

In point of actual payroll in the middle of April, the Tokyo main plant of the Kanegafuchi Spinning Company is at present the most important of all the company's mills, in spite of the fact that the Hyogo, Sumoto, Okayama and Osaka factories outranked it in both cloth and yarn production last year and several other plants exceeded it in one of the two. Japan has not yet recovered from the effects of the panic of 1920 and the subsequent earthquake in 1923. Reconstruction of the Tokyo plant was only completed last year. Business has been consistently

One of the Kindergarten Rooms.

A Group of Interiors at the Tokyo Plant.

poor and production tables, such as appear herewith, accordingly mirror the fluctuations of the market. Figures on spindles, looms and employees are those of April, 1926, while production data are for the year of 1925.

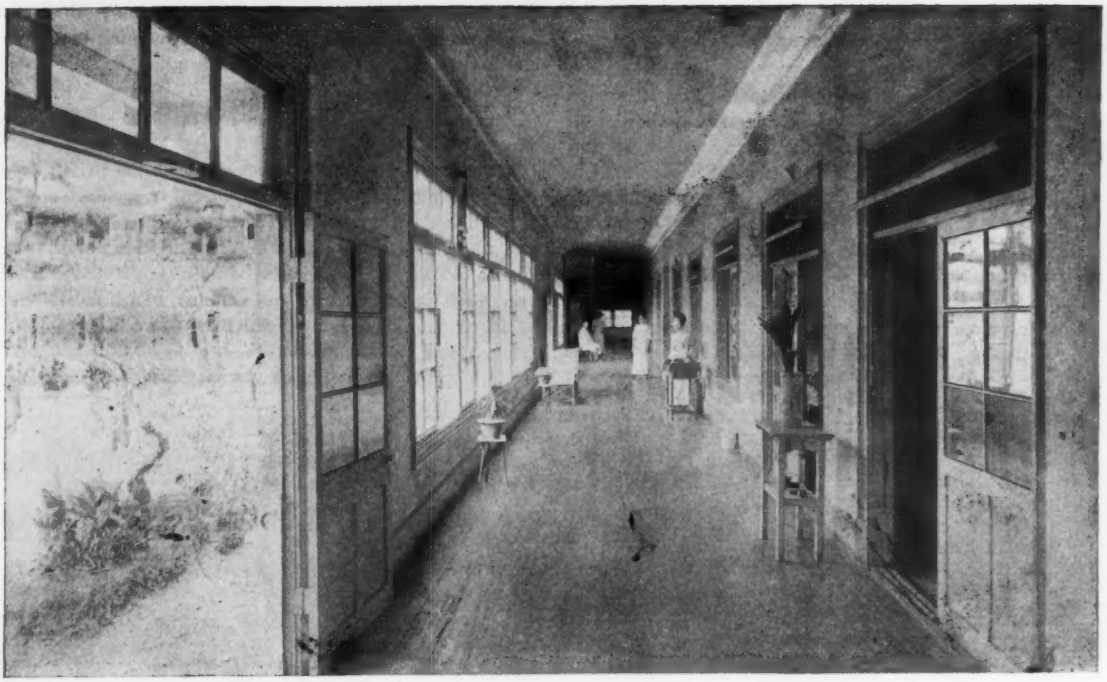
	Cotton Spindles	Cotton Looms	Male and female Operatives	Annual production of Cotton Yarn in lbs.	Annual production of Cotton Cloth in yards
Tokyo Mill	75,200	762	4,326	4,509,480	6,665,323
Hyogo Mill	95,600	1,469	4,179	9,028,560	29,753,761
Judo Mill	10,752	no loom	553	4,079,000	.....
Nakajima Mill ...	19,184	"	987	7,296,040	.....
Sumoto Mill	70,352	1,589	3,788	8,950,720	35,784,100
Miike Mill	31,104	no loom	1,372	8,334,680	.....
Kurume Mill	15,872	"	743	4,105,640	.....
Kumamoto Mill ..	12,268	"	366	1,574,840	.....
Nakatsu Mill	10,752	352	843	2,628,760	8,959,694
Hakata Mill	12,032	411	974	2,125,720	10,402,483
Takasago Mill ...	37,440	no loom	1,691	11,104,880	.....
Okayama Mill ...	14,528	982	1,466	5,159,720	22,339,415
Bizen Mill	44,284	no loom	1,399	5,206,000	.....
Saidaiji Mill	10,944	669	757	2,413,160	10,883,470
Wakayama Mill ..	11,520	no loom	512	3,837,160	.....
Osaka Mill	35,096	1,971	1,991	5,182,560	24,449,994
Matsuzaka Mill ..	15,860	no loom	616	2,281,920	.....
Total	522,788	8,205	26,563	87,818,840	149,238,240

Early in April I informed Mr. Muto that COTTON wished an article regarding his extensive enterprises and received in reply an invitation to visit the Tokyo plant, with the assurance that I might have the rare privilege of taking photographs and securing any other information which the magazine might desire. About the middle of the month I availed myself of this invitation.

The accompanying table above gives some idea of the size of the plant, which, by the way, covers 150 acres, but can give no adequate picture of the plant itself. Of the 4,326 workers, 3,000, all girls, live in dormitories on the company's property. The buildings, nearly all of which reached completion some time last year, their predecessors having been wiped out in the earthquake of 1923, are mostly of modern factory construction, one story in height, with saw-toothed roofs. In the center of the factory group is the power house, equipped with two 4,000 kw. General Electric turbo-generators, kept going with a battery of five British boilers equipped with automatic stokers. Only one generator is operated at a time, the other being kept in reserve, and at the time of my visit the meter registered 2,250 kw. Until this year this power was supplied by the Tokyo Electric Light Company.

With the exception of the looms, about a third of which are American, the other machinery in the plant is of British manufacture, by Lord, Platt, Shaw and Joseph Stubbs. Speaking of the American looms, Stafford automatics, our guide remarked that they were more efficient than their British cousins (Platt) across the aisle and probably would be used in future replacements.

Writing for textile men, it seems hardly necessary that I should describe the processes in use at the Kanebo mill in Tokyo, except to say that materials are routed through it in the shape of a half-moon having both horns on the water-front of Tokyo Bay. The company makes no attempt to sell its products in the export market, leaving this detail to exporters such as Mitsui Bussan Kaisha and Suzuki, but all its raw cotton must come by water and a



Interior View of the Infirmary.

Skillful physicians, trained nurses and highly sanitary and comfortable surroundings make sickness a pleasure in one of the Kanegafuchi plants. A great amount of care is taken to prevent the minor ailments of employees from becoming serious and medical inspectors circulating among the 4,000-odd operatives are continually recommending a "few days of rest in a pleasant environment."

A View of the Nursery.

large portion of its sales are transferred to steamers by lighters for direct export, eliminating extra handling.

In going through the mill the most noticeable feature was its immaculate cleanliness. In some parts it seemed almost a shame to walk about with shoes. In the dormitories, as a matter of fact, my translator and I were provided with rubber-soled foot-coverings, such as are used in private Japanese homes. These dormitories are probably the nearest approach to a home which the girl operatives could find in the city. The majority of these girls come from the country districts miles away from the centers of population, where the farmer's international propensity for raising more children than he knows what to do with is more than evident. With more mouths to feed than he can keep chewing, he sends his daughter to the cities looking for work. If she is a sensible girl she generally signs up for a couple of years with a concern such as Kanebo, where she is able to live on the premises, send money home at regular intervals and save considerable.

The dormitories are two-story buildings surrounding courts which, at the time of my visit, were brilliant masses of cherry blossoms. Tasteful pictures in both the foreign and Japanese schools of art hung on the corridor walls. The rooms themselves, about 20 feet square, were bright and airy, with flowers in the windows. Lockers stood at either side and the floor was covered with "tatami", which are straw mats about three inches thick, used for the floor of every Japanese-style Japanese house. On them the nation is born, eats, sleeps, marries and dies. At night a Japanese merely pulls two or three "futon", which are somewhat like feather beds America used to use before the alarm clock was invented, out of a cupboard, rolls up in them and drops off to sleep.

Sanitary arrangements also appeared to be ideally cared for.

In order to remove any suggestion of the prison from the plant dormitory, the management provides special rooms for the reception of visiting relatives of the workers, who are also allowed to stay in the dormitories for a few days, free of charge. All bedding, for operatives as well as visitors, is supplied by the company, which also attends to the laundering. Before going to work, the girls must remove their kimono and don the neat black "foreign style" uniform provided by the company. This is done so that all uniforms may be kept clean and fresh. Matrons are in charge of the dormitories and dormitory life.

Tenements.

Row upon row of little tile-roofed Japanese houses, each with its tiny garden and snowy "shoji," as the paper-covered windows are called, house the married employees of the Kanegafuchi Spinning Company, Ltd. When the mother is also a worker, her children, up to the age of two, are cared for in the plant nursery. After that age, they go to the kindergarten and commit their mischief at the company's expense.

For male operatives with families the company provides rows of semi-detached houses near the plant which employees may occupy at about one-third of the ordinary rental.

One of the most remarkable features of the Tokyo plant was the dining room, where we were told that 4,000 persons are served with good substantial food at one time. A charge is made for this food but officials told us that it is considerably below the actual cost. Handcars run on tracks down the center of the vast hall.

Looking out over Tokyo Bay is the plant infirmary, a modern, up-to-date hospital in every sense of the word,

with competent physicians living on the premises. Nearby are the contagious disease isolation hospital and the bacteriological laboratory.

During the summer the company sends employees for whom the doctors have recommended changes of air to approved mountain and seashore resorts, under the charge of nurses, at its own expense. Moreover, it now has three sanitoria on the seashore at various points for those in need of an extended period of recuperation after prolonged illness and sufferers from respiratory troubles.

In the center of the dormitory group of the Tokyo main plant there is a theater with seating accommodations for more than 1,200 workers. Once a week a regular performance is given in the hall and at other times it is open for such entertainments as the employees may devise.

To encourage long service the company has worked out a system of annuities, beginning for the men after 10 years of service and for the women after five. After 15 and 10 years of service, respectively, men and women workers continue to receive annuities for 15 years, even if they have left the firm's employ. After three years of service, all employees are entitled to whatever special bonus the concern's profits for the preceding year may warrant. Special annuities are also provided for workers injured on the job or incapacitated from disease or old age.

To encourage saving by its operatives, Kanebo pays 10 per cent interest on fixed deposits at its plant employee banks. Withdrawals are discouraged but allowed in cases of emergency, on short notice. The company also will undertake to make remittances to the families of the operatives, free of charge. Demand deposits, in small sums, are also allowed but bear no interest. The company has a special force to keep in constant communication with the families of employees who are far from home. In case of urgent need, it advances funds to bridge over family crises and allows the employees thus favored to make the loan good at their convenience.

On the grounds of each plant there are two fully-equipped schools. The first is for operatives, generally girls from the rural districts, who have had scant opportunities for education. The other is for the more ambitious among the male workers who wish to attain technical training. The classes meet in the afternoon and evening, before and after the shifts change.

Discipline must naturally be strict, but in order to protect the interests of an employee accused of breaking rules, the committee of punishment is chosen from among the workers. Its recommendation carries considerable weight with the officials and the institution has earned the respect of the operatives.

It might as well be noted here that the idea of boxes for suggestions and complaints was taken by Mr. Muto from the American "Review of Reviews", which gave an account some years ago of methods used by Mr. Patterson, president of the National Cash Register Company.

Working with contract labor as it does and in a country which does not hire and fire lightly, the Kanegafuchi Spinning Company generally has to keep more hands than it needs. When there is an excess of labor in any one mill, the operatives are allowed holidays by turns and receive 70 per cent pay for the time they are absent from the job.

Another factor making for contented workers is the company's established principle, which has stood the shocks and business depressions of over 40 years, that it will dismiss no one who is able and willing to work and is loyal to the interests of the company.

In case some of my readers may think that the Kanegafuchi mills pay excessively low wages, I might mention that girls such as those in the Tokyo plant often become domestic servants for one yen a year, clothes and food. I know grown men who work for less than $35 a month, some of them graduates of American universities. A Japanese, living on rice and fish, rice and vegetables, rice and still more rice, can feed himself for less than 15 cents a day. But with a problem of tremendous over-population and economic depression the whereabouts of that 15 cents is often perplexing.

Japan is now the foremost manufacturing nation of Asia. Especially is this true in the making of cotton yarn and cloth. The Empire is now consuming about 2,000,000 bales of raw cotton a year. India accounts for about 50 per cent of this, the United States for 30 per cent and China, Egypt, Korea and Australia make up the remainder. Not content with dependence upon far-distant sources, the nation is planning to develop plantations in the Kwantung leased territory. Only 2,200 acres there are now bearing cotton, but the Government-General has granted a subsidy to the Raw Cotton Plantation Encouragement Society in Dairen, which is planning to increase the acreage to 196,000 by 1933. Spinning companies here are backing other similar enterprises in Kwantung.

Kanegafuchi and Fuji Spinning interests are in back of the proposed incorporation of the Peru Raw Cotton Company, with a capitalization of $1,500,000 yen. The former have appropriated 80,000 yen for an extensive survey of the 6,200,000 acres of land which the Peruvian Government has offered rent-free to the Japanese capitalists.

Last year Japan produced 2,429,000 400-pound bales of cotton yarn and exported 293,781. China took more than half and India ranked second. Japan in 1925 produced 1,179,524,733 yards of cotton cloth and exported 860,000,000. China took 239,000,000 yards, Manchuria 161,000,000, India 162,000,000, the Dutch East Indies 86,000,000 and Africa, Straits Settlements, Arabian Persia, the Philippines and the Balkans absorbed the balance.

In three years Japan's revised factory law, prohibiting late night work for women and children, goes into effect. In order to prevent this measure from cutting down production, the leading spinners are taking steps to gradually increase the number of spindles in operation.

The Timken Roller Bearing Company, Canton, Ohio, have for distribution their new "Timken Engineering Journal," which contains a large amount of useful engineering information. The new journel supersedes previous editions of the company's publications of this kind, bringing them up-to-date. Among the additional material included is information on simplified methods of calculating bearing loads; necessary steps in the selection of the proper bearing; rating and capacity tables; methods of mounting and closures, as well as a full set of dimension sheets. This, the company announces, is the initial section of a complete treatise on the application of Timken bearings to automotive and industrial equipment. Sections relating to particular fields are in process and will be issued for inclusion in the cover as soon as completed.

Warp Sizing

BY PAUL SEYDEL

A Well Sized Warp

Besides the proper selection of cotton and its careful spinning, the correct ingredients and mechanics of sizing are most important to obtain a perfect warp.

It is, of course, necessary to use a starch, of which the amylopectose has not been destroyed by the use of acids and ferments or careless manufacture and storage. A good sizing starch has considerable viscosity and consequent strength and elasticity, this is very important to reduce breakage and shedding.

Shedding is also due to other causes, such as overbaking through excessive heat at the slasher drums, excessive drying of the warp, and the improper balance of sizing ingredients. Tallow alone is far from being an ideal lubricant and must receive the addition of such ingredients as will overcome its tendency to loosen the fibers in the warp. Starch does this very imperfectly, especially thin boiling starch, which must be aided by the presence of gums, waxes and viscous oils.

Thin boiling starches have their application in finishing, but for sizing they are inferior in direct ratio to their lack of viscosity and elasticity.

A very thin boiling starch is very similar to sugar and has but little more value than sugar as a sizing ingredient. It does not form a film, therefore adds neither strength nor elasticity to the warp. In the good old days when the demand was greater than the supply and people had to be contented with inferior goods, tallow and wheat or rye flour with or without zinc chloride were considered good sizing mixtures, and warp dressers somehow managed to get along with them.

When starch came in to replace flour, especially with the advent of fast-running automatic looms it was found to be deficient in elasticity and tensile strength and weave sheds looked like the scene of a snow storm, so bad was the shedding. To overcome this, size mixtures had to be devised, not alone to improve the lubricating qualities of tallow, to give it more viscosity and body at the working temperatures, but also gums had to be added to starch, especially thin boiling starches, and chemicals as well, to replace the gluten and amylopectine which had been destroyed in the manufacture of the starch.

It was found that the proper amount of moisture in the warp was of great help, so deliquescent substances were used, and to overcome a tendency to mildew antiseptics of a permanent nature were added, antiseptics which do not evaporate on the slasher drums.

Competition being keen, finer and finer goods being made, goods with highly twisted warps, such as crepes, had to be sized so as to keep the twist from kinking until woven. Constructions of higher counts and peculiar weaves needed exceptionally well sized warps to resist the strain of a close weave.

Also goods were subjected to complicated processes and so the successful size maker had more and more problems to study and it has become a highly specialized industry requiring a very special and very thorough knowledge of chemistry as well as a keen understanding of the mechanics of the textile industry. The old time size mixer using an empirical formula left him by his father, he was without understanding the whys and wherefores of it, is gradually being being replaced by real scientists who know what they are doing and why.

To use the words of a German warp specialist, Carl Kretschmar: "A fundamental axiom in connection with starch and flour sizes is that repeated boiling up must be avoided, as this treatment considerably impairs the adhesive properties of the size."

Altogether too many warp dressers fail to realize this and allow their size to cool off, a thing they should never do, as once starch has jellied it is ruined for sizing purposes and cannot be brought back to a boil with the expectation of obtaining a satisfactory size. Size should not be made one day for use the next day if it can at all be avoided, but if it is unavoidable it should be kept very hot as cooling anywhere near the point where it starts to jelly causes it to rapidly lose its coloidal properties, with the result that it does not produce a continuous film, and of course does not give the warp the proper protection. Fresh size only should be used, for even and best results, and it should be used at a temperature above 200 degrees Fahrenheit, and within a very few hours after it is prepared.

Too many mills have plenty of looms, but not enough warp dressing equipment, and in order to keep up with the consumption of warps by the looms, the warp dressing equipment is pushed by speeding up the rotation of the drying drums with the very deplorable tendency to carry too much pressure and consequently too high a temperature on the drum with the result that warps are baked, harsh and brittle. The warp, during high speed automatic weaving, is subjected to considerable tension and it is the function of a good warp dressing to protect it against this tension, as well as abrasion occuring when passing through the heddles and due to the alternating motion of the reeds. The lower the temperature at which the warp is dried, the stronger and the more elastic it will be, other things being equal. The warp dresser must not only protect his warp, but he must be able to give it stiffness, smoothness, resiliency according to the fabric desired.

The warp for fine fabrics must be sized differently from the warp intended for heavy, coarse goods. Fine warps to obtain a thin fabric of low count requires a very light size; if the fine warps are used to obtain a fabric with substantial appearance and feel the warp may have to be sized very heavily.

To give hardness to a fabric made with hard twisted yarn the size should contain more starches and less fats, also gums rather adhesive and soluble, whereas when opposite qualities are desired the size should contain gums that produce a bulky mucilage not so much starch and a good proportion of carefully selected fats.

A carded, long staple ,well twisted warp is much less of a problem to size than one made with poor material carelessly handled. Many a warp poorly made, of inferior material has caused sleepless nights to the warp dresser. Of course, a warp that must be bleached and further processed requires careful treatment that will not interfere with subsequent processing.

A dyed warp requires a transparent size so that the color will not be dulled which may occur with inferior

grades of starches, flours and sizes. Potato starch is known among the starches to be most transparent. Some starch gums have almost perfect transparency.

A well sized warp must not dust off in weaving. This is due to overbaking or poor adhesion, it is wasteful, dirties the looms and spoils the appearance of the weave shed. It may be due to insufficient boiling of the size and to application of the size at too low a temperature.

Cleanliness is essential where warps are sized and kept, dust and dirt are easily absorbed by a damp warp with resulting damage which with ordinary care should be avoided.

A very heavily sized large warp requires a specially good lubricant and a size with unusual elasticity.

Penetration is only desirable to an extent sufficient to favor good anchorage of the warp's film rather than to make a rod-like warp, which would lack in resiliency and elasticity. It is best to have a well lubricated core to a warp with an elastic pliable film on the outside that will protect the warp, strengthen it and make it easy to tie and to weave. Fats with good oiliness and penetrating properties must be used for this purpose.

A very thin boiling gum or starch in penetrating the warp too thoroughly would produce a rod-like yarn, harsh, stiff and brittle. The gums and starches used for sizing therefore must have considerable mucilaginous and viscous qualities. A well sized warp must be clean, smooth and firm, the feel must be agreeable and it should be free from any objectionable odor or color.

It is poor economy to use sizing ingredients of inferior quality as the cost of good sizing materials is repaid many times by the greater value of the goods obtained, as well as improved production in every way. Of course the price of sizing ingredients is not necessarily in proportion of their value. It is an essential requirement of a good size manufacturer, to have a thorough understanding of the materials available, to produce the greatest efficiency at the minimum cost.

End Breakage in Spinning

BY HORACE H. WILLIS.*

In the face of the keen competition existing in all lines of business the paramount objective of the producer is quantity and quality production at a minimum cost. In their efforts to attain this objective, manufacturers have come to recognize the necessity of close scrutiny of all phases of production in order that each phase may be brought to its maximum efficiency. In cotton spinning, breakage of ends has in years past been accepted as a more or less unavoidable evil. If late, however, considerable interest has been evidenced in the causes of bad running spinning, in the resultant machine hour loss, and in possible preventive or remedial measures.

This end breakage is a factor of considerable economic importance especially from the standpoint either of machine hour or of labor cost. The higher the number of broken ends, the fewer spindles can an operative tend, thus increasing the manufacturing cost per pound of the finished product. When the breakage of ends is high, hundreds of pounds of cotton called "scavenger waste" are either returned to the picker room to be reworked or are sold as waste. In case this scavenger waste is reworked, the labor or machine hour cost of the first handling of this cotton from bale to spinning room has been lost. If, on the other hand, this waste is sold, the price received is in most instances lower than the original price of the raw stock. Thus, either the loss in handling charges or this handling loss plus the difference between the price of the raw stock and the selling price of the waste must necessarily be reflected in the cost sheet of the finished yarn.

Another expense attributable in large part to excessive broken ends is that of roller coverings. When the end breakage is high, the loose cotton in process of delivery often laps around the leather covered top rolls to such an extent as to retard their surface speed. This, of course, roughens and, in many instances, ruins the leather cover.

Bad running work, as evidenced by breakage of ends, may be due to some one or more of the following: (1) low quality of cotton used, i.e. lack of uniformity in length and strength of staple, (2) length of staple being unsuited

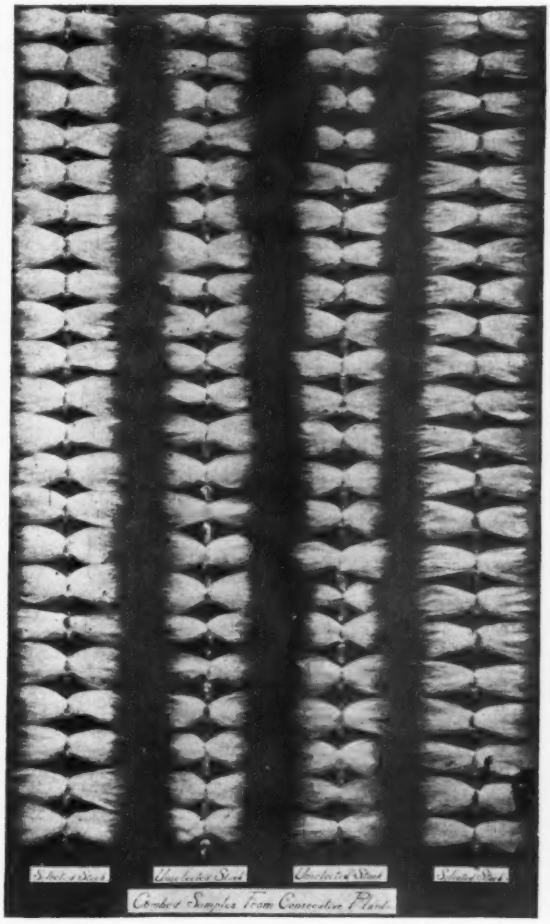


Fig. 1. Uniformity of staple length of cotton from selected seed and lack of uniformity in fiber length of cotton from mixed seed are illustrated.

*U. S. Department of Agriculture, Cotton Testing Project.

to the number of yarn spun, (3) various mechanical causes, and (4) lack of proper temperature and humidity.

In comparing the working qualities of different cottons of practically the same staple, a record of the number of broken ends occurring while the yarn is being spun is valuable. Our tests have demonstrated that a pure strain of cotton has far fewer broken ends than a mongrelized cotton of the same staple length. (See Table 2). This no doubt is due to the greater uniformity both in length and strength of staple found both in selected and in line-bred cotton.

Figure 1 illustrates the uniformity of staple length in cotton produced from selected seed as contrasted with the lack of uniformity in fiber length in cotton grown from unselected or mixed seed. Columns 1 and 4 show combed samples taken from consecutive plants grown from selected seed. Note the uniformity of fiber length of the entire columns 1 and 4 as well as the uniformity in length of the fibers attached to any one seed. From cotton of good quality, possessing this uniformity, a very uniform yarn can be produced with minimum end breakage. Columns 2 and 3 illustrate combed samples from consecutive plants grown from unselected or monogrelized seed. Note the irregularity in fiber length of these samples in relation to one another as well as the lack of uniformity in length of the fibers attached to any one seed. In spinning yarns from this mongrelized or mixed cotton, these short fibers float through the rolls and serve as a filler. Since these fibers are too short to be drafted properly, i.e. they are not distributed evenly throughout the length of the yarn, thick and thin places occur. These thin places cause frequent breakage, especially when the particular cotton is being spun into yarns within the upper range of numbers to which it is suited.

Each length of staple has a certain yarn range to which it is adapted. When a cotton is spun into a yarn number beyond this range, the breakage of ends runs high. High breakage in this case does not reflect upon the quality of cotton; it simply means that the length of staple is unsuited to the particular yarn number.

In case the cotton is of high quality, the yarn number being spun is within the range of the length of staple, high breakage is probably due to improper mechanical or moisture conditions. Some of the mechanical phases of manufacture resulting in high breakage of ends are as follows: (a) incorrect drafts, speeds and settings, (b) improper tension on the drawing and roving frames resulting in thin places in the stock, (c) use of a twist multiplier unsuited to the cotton at hand, (d) blunt or dull skewers which may increase the friction to such an extent as to stretch the roving in the creel, (e) dirty or rough top or bottom rolls, and (f) too much or too little oil. In connection with the mechanical details the machine operator is, of course, an important factor in making a first class product.

Since cotton is highly hygroscopic, humidity is an important factor in the spinning of yarn. Assuming that the quality of the cotton, its length of staple and the mechanical conditions are adapted to the work at hand, comparatively high breakage of ends will nevertheless occur in case the proper temperature and humidity are not maintained. Improper moisture conditions affect not only the running qualities of the work but also have a detrimental effect upon the uniformity and strength of the yarn spun.

The mechanical and moisture conditions under which a cotton is run rest with the discretion of the manager, his decisions being governed largely by local conditions and by the kind of cotton being used. Detailed information in regard to the tests referred to in this article may be obtained from the United States Department of Agriculture upon request.

As a natural result of the interest in the causes of broken ends, the question has arisen as to how many broken ends per a given number of spindles may be expected under proper conditions. A specific record on this point is seldom kept in a commercial plant. Various estimates, however, have been suggested as fair averages. These estimates range from .5 ends to 5 ends per 100 spindles per hour. Our data indicate that the former figure is low while the latter is high. The following tables on end breakage are based on records kept on tests conducted during the past eighteen months. These data are representative in that they cover several different lengths of cotton from various sections of the cotton belt, and are comparable in that the cottons tested were run under similar moisture and mechanical conditions.

Table 1 deals with long staple cottons grown in California.[1]

[1]For detailed information on general test see "Spinning Tests of Acala and Pima Cotton, San Joaquin Valley, California (Crop 1924)" by H. H. Willis, United States Department of Agriculture.

[2]For detailed information on general test see "Spinning Tests of Leading Varieties of Texas Cotton (1924 Crop)" by H. H. Willis, United States Department of Agriculture.

TABLE 2.

The number of broken ends occurring on thirty spindles for two hours for each twist used and for each number spun. (Texas cotton).

Number of yarn	22s			28s			36s			44s		
Twist multiplier	4.25	4.50	4.75	4.25	4.50	4.75	4.25	4.50	4.75	4.25	4.50	4.75
Revolutions per minute of front roll	152	143	136	127	119	115	103	98	94	92	87	83
Variety / Length of Staple (inches)	Broken ends											
Acala 15/16 to 1	0	0	1	1	0	1	0	0	0	0	0	0
Lone Star 7/8 to 15/16	0	0	0	1	0	0	0	0	2	0	0	0
Bowden 15/16	2	2	3	1	2	0	0	0	0	0	3	0
Kasch 7/8	0	0	0	0	0	1	2	1	2	6	3	3
Kekehi 1 to 1-1/16	0	0	0	0	0	0	0	0	0	2	0	2
Hoground 7/8	0	0	1	1	1	1	3	5	2	25	10	7
Mebane 7/8	1	1	0	0	0	0	1	0	0	0	1	0

TABLE 1.

The number of broken ends per hour per one hundred spindles shown by variety, by length of staple and by number of yarn.

(California Cotton).

Variety	Staple (inches)	Number of Yarn 50s	60s
Pima	1-5/8	0	0
Acala S-5 (combed)	1-5/16	1.4	0
Acala S-5	1-5/16	1.4	.5
Acala S-2	1-3/16	2.7	2.5
Broad-leaf Acala	1-1/16	.8	11.0
Acala S-1	1-1/16	3.5	8.8
Okra-leaf Acala	1-1/16	8.0	21.4

The high breakage of the last three varieties on 60s yarn and of the last two varieties on 50s yarn in Table 1 is largely due to the fact that the staple of these varieties was too short for these particular numbers of yarn.

The end breakage for six different Texas varieties and one lot of mongrelized, or mixed cotton designated as "Hoground" is listed in Table 2. This record represents a two-hour run on thirty spindles for each twist multiplier of each number and variety. These numbers of yarn were manufactured under similar mechanical and moisture conditions.[2]

Assuming that the mechanical conditions are correct, the running qualities of the work depend in large part upon the quality of the cotton. Attention is called to the Hoground or mongrelized cotton in Table 2. These data show what may be expected from mixed cotton. This cotton ran very well in the 22s yarn, but fell short in the real test when it was subjected to further drafting for finer numbers of yarn. Note that the minimum end breakage occurred on the Mebane and Kasch varieties of the same staple length as the Hoground. The strength of these 36s and 44s yarns was of course not up to standard due to the shortness of the staple.

Recently spinning tests were made on the nine white grades of upland cotton for the purpose of studying their comparative waste and finishing qualities. During this test the number of broken ends which occurred on each grade was recorded. These data are listed in Table 3. The results are based on a four-hour run of 30 spindles and include the total breakage for the three-twist multipliers, 4.25, 4.50 and 4.75.

TABLE 3.

Ends breaking while spinning each grade of Eastern and Western upland cotton into 22s yarn (based on ends per hour per one-hundred spindles).

Grade	1	2	3	4	5	6	7	8	9
7/8 to 15/16 staple.									
Eastern cotton	0	0	3.56	1.95	0	0	.87	.99	0
Western cotton	0	.97	9.76	0	0	0	.95	1.67	0

The data in Table 3 indicate that end breakage is dependent upon factors other than grade. For instance the excessive end breakage on Grade 3 of the Western cotton is probably due to the inferior quality of this particular lot as indicated by the results of the strength tests.[3]

The end breakage in Table 4 has been compiled from spinning tests of seven varieties of South Carolina cotton grown during 1925. Weather conditions thoughout the state during the 1925 season were on the whole unfavorable to cotton production.[4]

The high breakage throughout the test for lot number 3 (Wannamaker-Cleveland) is mainly due to the shortness of the staple for these numbers of yarn.

Table 5 gives end breakage data on four cottons grown in North Carolina in 1925.[5]

TABLE 5.

End breakage on four lots of North Carolina cotton by variety, by number, and by twist multiplier. (Two hours run on thirty spindles on each twist of each number).

The results listed in Table 5 bear out the statement pre-

Number of yarn		22s		28s		36s		44s	
Twist multiplier		4.25	4.75	4.25	4.75	4.25	4.75	4.25	4.75
Variety	Staple (Inches)								
Mexican Big Boll, (Raleigh)	1-1/16	0	0	0	0	0	0	0	0
Mexican Big Boll, (Speed)	1-1/32	0	0	0	0	0	0	2	2
Mexican Big Boll, (Kingsboro)	1	0	0	0	0	0	1	1	3
Acala (Fayetteville)	1-3/32	0	0	0	0	0	0	0	1

[3] "Manufacturing Tests of Cotton of the White Grades of the Universal Standards for American Cotton" by H. H. Willis, United States Department of Agriculture.

[4] For complete report of test see "Spinning Tests of Leading Varieties of South Carolina Cotton (Crop of 1925)," by H. H. Willis, United States Department of Agriculture.

[5] "Spinning Tests of Leading Varieties of North Carolina Cottons (Crop of 1925)" by H. H. Willis, United States Department of Agriculture.

TABLE 4.

End breakage per 100 spindles per hour of South Carolina cotton for each variety and number of yarn. The grade of cotton ranged from Middling to Good Middling.

		Carded Yarns					Combed Yarns		
Number of yarn		22s	28s	36s	44s	60s[1]	50s	60s	70s[2]
Variety.	Staple (inches)								
Coker-Cleveland	7/8	0	1.67	3.33					
Piedmont-Cleveland	15/16	0	.83	0					
Wannamaker-Cleveland (Clemson College)	13/16	3.33	5	12.5					
Wannamaker-Cleveland (St. Matthews)	7/8	0	0	0					
Dixie Triumph	15/16	0	0	0					
Deltatype-Webber (Carded)	1-1/8 to 1-3/16		0	0	1.67	4.17			
Deltatype-Webber (Combed)							0	1.67	0
Hartsville No. 20 (Carded)	1-3/16		0	0	.83	2.5			
Hartsville No. 20 (Combed)							0	.83	0
Deltatype No. 4 (Carded)	1-1/4		0	0	0	0			
Deltatype No. 4 (Combed							0	0	.83

[1]Carded 60s with spinning draft of 15.00. [2]Combed 70s with spinning draft 14.71.

viously made that breakage of ends depends in part upon the staple being of sufficient length for the yarn spun. Note that the breakage increased in the yarn numbers within the upper range of a particular staple.

To summarize: Breakage of ends results in an economic loss which may be largely avoided by (1) use either of selected or of line bred cotton of good quality, (2) use of a length of staple, the range of which is suited to the yarn to be spun, (3) proper mechanical conditions, (4) adequate temperature and suitable relative humidity.

Southern Textile Men Meet at Tybee Beach

Progress of a definite character toward standardization in textile products and processes was indicated at the annual convention of the Southern Textile Association held at Tybee Beach, Ga., on Friday and Saturday, July 16th and 17th. The work done thus far along this and other lines was revealed in the various reports, and action taken which augurs for a continuation of valuable activity in the future.

W. H. Gibson, Jr., of Mooresville, N. C., was elected president; L. R. Gilbert, of Raleigh, N. C., was named vice-president; and Carl R. Harris, of Inman, S. C., was made chairman of the board of governors, in the election at the concluding session. The office of executive secretary was created, and F. Gordon Cobb was selected for this post, a committee being named to engage a man to fill the office of secretary to assist Mr. Cobb in the executive work of the Association. The following men were elected to the board of governors: T. A. Hightower of Edgefield, S. C.; T. W. Mullen, of Rosemary, N. C., George W. Turnipseed, of Siluria, Ala., and Oliver G. Murphy, of Shawmut, Ala. L. L. Brown, whose term expired with this meeting, was named to fill the unexpired term of Carl R. Harris, made vacant by Mr. Harris' elevation to the chairmanship.

The meeting was opened in the Tybee Hotel Pavillion on Friday morning, July 16th, by President Oscar D. Grimes. Following the invocation by Marshall Dilling, Mayor Gamble of Savannah welcomed the visitors, and J. A. Chapman, Jr., of Inman, S. C., made a happy response to the address of welcome.

The first feature was one of the best, being an address by Robert F. Bowe, assistant vice-president, Hunter Manufacturing & Commission Company, New York City on the subject

"Delivering the Goods"

Mr. Bowe was introduced by Secretary Cobb as a man with practical and technical experience in both manufacturing and selling, therefore fully qualified to discuss this subject before the operating executives. Mr. Bowe's remarks follow in part:

"First, please understand that this discussion is not from the standpoint of the New York commission houses, as some one intimated to me several weeks ago. The selling agent's view point always is or should be the mill's viewpoint, because the mill's interest is his interest. The two are associated as partners with the one objective, namely the successful and profitable operation of the mill.

"And so I am going to make reference to a few factors that have a direct bearing on the delivery of merchandise and concerning which there is sometimes a difference of opinion between the mill and the customer.

"I shall refer first (and particularly) to grey goods, the class of cotton fabrics that constitutes so large a proportion of the product of our southern mills; the class that includes print cloths, sheetings, twills, drills, sateens and jeans, both narrow and wide. In considering this subject, it seems to me that it naturally divides itself into two parts; namely, the matter of general specifications, such as width, weight, etc., and the matter of poor delivery which plays such an important part in the delivery of merchandise. To anyone outside of our industry, it might seem peculiar that we do not have a concise written agreement on such matters. At present we have none, although it is now being given serious consideration and with the view to reaching some understanding. Nevertheless, the trade customs that have developed over a period of years and which have been recognized by court and arbitration decisions, give us a fairly definite basis for each case.

"Suppose we take a contract for 50,000 yards of 36-inch 56/60 4.00 sheetings. If they are bought by a converter, he will specify 'double cuts as far as practicable.' Assume that the mill packs the sheetings about 1,600 yards to the bale, how many goods can be applied both double and single cuts? The trade custom has established very definitely that a contract should be filled to the *nearest full bale.* In other words, a contract should not be over-applied or under-applied by more than half a bale, or in this case, 800 yards. That is, a good delivery is between 49,200 yards and 50,800 yards. Likewise, a mill is entitled to deliver about 10 per cent of yardage in single cuts. Occasionally, a customer will complain on a declining market because the mill has delivered too many goods on a contract. If a mill adheres to the custom and has fulfilled the contract to the nearest full bale, the customer has no ground for complaint, and the mill's position can be readily maintained. The same is true of single cuts. Customers will not complain of ten percent, or occasionally eleven or even twelve percent, but in general the present trade custom requires that single cuts should not exceed ten percent. I might add parenthetically that some sort of an agreement might be worked out to permit 15 percent single cuts and I believe it would not work a hardship on the buyer

"Naturally, the question arises as to what is a single cut and a double cut. Single cuts are usually from 40 to 79 yards in length and double cuts are usually 80 yards and over; the latter generally average about 110 to 120 yards. Fine combed and fancy fabrics often include in single cuts pieces as short as 30 yards but that length of cut is tacitly agreed to in advance. Of course, for converting purposes, two short pieces should never be folded together and packed as one cut, because of the trouble it will cause in the finishing plant.

"Speaking of single cuts, reminds me of a case that came to my attention a short time ago. On a contract for wide sheetings, the mill had delivered in one shipment 18 percent single cuts and in another shipment 21 percent single cuts. The customer refused the merchandise, claiming that it was not a good delivery; the mill sold the goods to the best advantage possible and established the market loss. Suit was entered against the customer and the mill found it difficult to secure expert testimony in the trade to support their position that they had made a good delivery. Before the case came to trial, the customer offered to compromise and the mill agreed.

"The time of delivery is a very important factor. Merchandise sold for 'June delivery' may be delivered by the mill any time during the month up to and including June 30th; if shipping instructions have been given, the mill must furnish the bill of lading showing actual shipment not later than the 30th. Suppose a delivery is specified June 10th to 15th and the shipment is made on June 16th or 17th. If the market has declined, some customers are inclined not to accept the shipment unless the contract price is modified to the market price. It seems unfair sometimes, but in the case cited the mill could not support the delivery either in arbitration or in court. Some mills will sell, say 25,000 yards for delivery 'about June 15th.' In practice the use of the word 'about' is rather indefinite; in that case, a shipment June 14th or June 16th would undoubtedly be a good delivery, whereas June 17th might be difficult to maintain on a declining market. In our organization, we

President Oscar D. Grimes

always try to avoid such situations by giving the mills a little leeway, specifying for instance, June 10th to 15th.

"I have seen a number of disputes about 'spot' or 'prompt' delivery. A sale made for a southern mill by their New York selling agent for 'prompt' delivery means that the shipment must be made without unnecessary delay, allowing, of course, the usual time for the transit of the order to the mill and the usual time for the mill actually to ship. At best, unless shipping instructions are wired to the mill, four to five days are required and sometimes six or seven days, if Sundays or holidays intervene.

"Let us hurry along to actual specifications and we will refer again to the construction first mentioned; namely, 36 inch 56/60 4.00 sheeting. We all know that a mill cannot make every yard to weigh 4.00 yards nor measure exactly 36-inches in width. How much variation is permissible or, as it is frequently expressed, what is the 'tolerance'?

"Again, there is no definite written agreement. Naturally, there are minor differences of opinion but on the whole, the custom in the trade is fairly well defined. Furthermore, in 1910, an effort was made by the National and the American Cotton Manufacturers' Associations to develop a standard salenote in connection with the buyers of merchandise. The effort failed but many court and arbitration decisions have been based on the trade customs as reflected by the so-called standard salenote in which they are embodied.

"In regard to weight, it is generally understood that no piece nor cut may be over 3 percent light, no bale over 1 percent light and no shipment or contract delivery lighter than the specified weight. Our 4.00 yard sheetings would, therefore, be made so that no piece is lighter than 4.12 yards, no bale lighter than 4.04 yards and the entire 50,000 yards should average approximately 4.00 yards. This seems to be reasonable for the mill and equally so for the buyer. If any question is raised pertaining to the weight of merchandise, the mill's invoiced net weights are usually accepted upon the assumption that the goods were made and packed under proper conditions of humidity. But, if there is further question about the Mill's invoiced weights, then it is necessary to take a number of full pieces at random and re-weigh them after they are re-conditioned by exposure for 24 hours to a relative humidity of 70 degrees at a

W. H. Gibson, Jr., the President-Elect

temperature of 70 degrees Fahrenheit. Frequently, by the time the goods reach the destination there is a loss of 1 percent to 1½ percent in weight, especially during the summer, due to the drying out of the natural moisture in the staple. I have known of instances where disputes made it necessary to recondition sample pieces and verify the weights as just explained. In actual practice, therefore, if merchandise is received by customers weighing not over 1½ percent light (representing the drying out), the deliveries are usually accepted without question.

"Of course, it is difficult to measure the width of low end or sheer weaves, but in general, it is understood that the width should not vary by more than ⅜ inch below nor ⅝ inch above the specified width and the width should not be uniformly less than specified but must in a majority of places be equal to or above the specified width.

This is a total permissible variation in width of one inch and it seems to be fair to the mill; likewise, it seems fair to the customer. I am aware that a recent paper by W. H. Harris of New York proposed tolerances of 1½ inch wider and 1 percent narrower than standard. Except in wide fabrics, the two are very nearly the same. My figures are based on the trade custom as manifested by the so-called standard salenote, and have been used many times in the trade in arbitration.

"Let us consider next, the sley and picks. In general, the warp ends per inch should vary not more than one (1) end below nor two (2) ends above the specified count. Of course, in high sley weaves, such as warp sateens, the tolerance cannot be kept quite within those limits. In any event, the total warp ends in the fabric should equal the specified width and multiplied by the specified sley plus the customary selvage threads.

"The picks, of course, are subject to more variation. According to the trade custom, as reflected by the so-called standard salenote, the number of picks per inch should not vary anywhere more than three (3) picks below nor more than four (4) picks above the specified count; that the filling count should not run below the specified count through the piece but must in a majority of places be equal to or more than the specified count. This tolerance in the filling count was adopted some years ago by both the National and American Associations and since then has been approved by many buyers of certain classes of grey goods. Obviously, it does not apply to some extreme constructions, like filling sateens. It might be mentioned here that there are some in the industry who believe that a more equitable basis for both the buyer and the mill would be a tolerance of 3 percent more and 2 percent less than the specified filling count and nowhere a variation of more than 4 percent. This is approximately the tolerance proposed by W. H. Harris, and it is possible that it could be maintained or established by actual deliveries that are customarily made by various mills.

"You will understand, I am sure, that the foregoing references to specifications apply particularly to grey goods. The tolerances will vary for such fabrics as fine combed fancies, silk and cotton mixture, rayon filled goods, ginghams, etc., and the time is too limited this morning to discuss each in detail.

"Before proceeding further, I want to mention the matter of packing seconds and shorts. Again, having grey goods in mind, the experience of our organization has led us to advise our mills in this way. All seconds, both double and single cuts (except oil stained) are packed together and these you recall are 40 yards and over; then the shorts are packed (except oil stained) 20 to 40 yard pieces, 10 to 20 yard pieces and 1 to 10 yard pieces, and all of the shorts are 'run of the loom'. I realize that quite a few mills vary their packing from these figures but this packing seems to fit most requirements better and permits the mill to get a maximum return for them. All oiled and stained seconds and shorts should be packed separately; the trade understands that oilstains are not seconds, and it has been rather definitely established in all quarters. Besides, when packed separately, the mill can invariably get a better return for them; frequently when oil stains are sold as such to a customer, he can often provide for proper processing when the goods are finished and thereby use them advantageously.

"And now, we come to the matter of poor deliveries. Obviously, this is a subject too large to cover fully in a general discussion and, at the same time, it is so important that it demands some consideration. I shall comment particularly on several classes of poor deliveries and shall then refer to a few individual cases that have come to my personal attention and that might be of passing interest to you.

"First, we would probably all agree that no hard and fast rules of inspection can be laid down for all grey goods because different industries require different types or degrees of inspection. For instance, some industries use always 'run of loom', others accept an indefinite number of mispicks, while still others must have merchandise comparatively free of minor imperfections. I realize that it is not always practicable for a mill to have in one cloth room a different type of inspection for each construction. On the other hand this is the day of *special* inspection and the mill that goes to the extent of weaving and inspecting especially for the requirements of this or that industry, is the mill that usually gets the preference in these days of keen competition. And furthermore, it must not be overlooked that in its last analysis, the need of the customer is the prime requirement of the manufacturer. I merely mention this in passing, and will refer to it again later.

"Whether or not a mill goes to the extent of inspecting specially for a particular industry, there are certain definite requirements that have come to be generally known and understood in the trade. For instance, washed out oil spots cause a great many arguments and again, there is no definite written rule concerning them. It is generally considered good practice to use an oil remover on all grey goods unless instructed to the contrary by the customer. A customer, therefore, using jeans for sulphur dyeing will invariably put the mill on notice to use no oil remover, and a converter buying print cloths to bleach and print will expect the mill to ship washed out oil spots. I might add that this subject of washed out oil spots is getting a great deal of discussion at present in New York. One or two cases will show you the kind of problems that sometimes develop.

"A large converter of print cloths who always bleaches them bought a quantity some time ago, and the mill rightly shipped goods containing occasional washed out oil spots. Later, the converter resold some of the goods to a third party who had them dyed from the bale in solid colors—and many of the finished goods could not be used because of spots—who was responsible for the loss? Another case recently came to my attention where a Mill sold a high grade fiabric for converting and included some washed out oil spots; the same finisher had previously processed similar goods made in the same way, and the washed out oil spots were not noticeable nor did the finisher complain at that time. But the finisher told the converter of a new process whereby the goods could be dyed more economically, and then when the later deliveries were finished in the new way, every washed out oil spot stood out prominently and the converter had a severe loss. Who was responsible? Cases like these deserve special thought because efforts are being made right now to reach some definite understanding that will be equitable both to the mill and to the customer.

"Passing along it might be well to mention briefly weaving imperfections and the classification of seconds. Here, too, various industries require different grading of grey goods. Many special trades have sought to improve their

product through research work and to that end have installed laboratories equipped with all kinds of testing apparatus and technical men to run them. Therefore, it has become a question of the quality of grey goods most suited to their respective needs. Until recent years, many such industries used the product of any mill so long as it was right construction, but today, it is different. Their research work has pointed out the quality best suited to their needs and their orders are placed accordingly.

"And now, let us return for a few moments to the subject just referred to, the grading of grey goods. In general, most fabrics for converting are inspected on the basis of one minor imperfection for every five to six yards and sometimes six to eight yards for first quality goods. Some important buyers limit minor imperfections in firsts to one in every ten yards. And while there is room for a wide difference of opinion, one is often surprised to find that three different individuals will all agree if a question goes before an arbitration committee for a decision.

"In actual practice however, there are not many real disputes about imperfections, and certainly not as many as one would imagine. For instance, some weeks ago, a complaint was made by a customer who considered a shipment of 50,000 yards to be quite bad. The mill investigated—and acknowledged that it was not a good shipment, but maintained it was not as bad as the customer had claimed. The customer finally kept the goods with a small allowance.

"May I mention here that in order to be classified as seconds, the product must be merchantible; that is, seconds should not contain what is often referred to as major imperfections such as large filling skips, large holes and torn selvages. These major imperfections should be cut out and, if necessary, the pieces packed as shorts.

"When we leave the field of general converters of grey goods, the grading covers a wide range because as mentioned before, many industries have developed special requirements. One industry uses entirely 'run of the loom' which product is understood to contain minor imperfections, but no major imperfections, such as bad warp break cuts, large filling skips, etc.; another important industry will accept a reasonable number of minor imperfections but insists upon a given tensile strength in warp and filling; another important industry does not particularly object to a few mis-picks or broken ends, but their deliveries must be entirely free of slubs, thin places and hanging threads. Still another large industry must have all 'feeler' made goods practically free of hanging threads, kinky filling and shuttle marks.

"Now, in final reference to the grading of grey goods, some of our friends in the converting industry take the position that a mill should eliminate all imperfections from their product. Well, we know that no mill can make perfect goods. However, with the efficient management of our mills today, and the general attention that is being paid to details, I do believe that no mill should have any great difficulty in procuring merchandise that will come within the ordinary requirements of quality. Beyond that many mills through their spinners, weavers and cloth room overseers, can develop the special qualities of certain constructions that are most suited to the requirements of certain industries.

"If you will pardon a personal suggestion, I assure you it is not intended in a critical sense. From my observation, I believe many of our southern mills could profitably devote more attention to the cloth room. It is far more than a packing department for it is a sort of sieve where bad work from every other department is picked out. The inspection in a way regulates the spinning, slashing and weave rooms. I know of several mills for instance in which inspection and packing are so important that they pay their cloth room overseers the same as the other departments and they consider it is money well spent.

"I realize that all I have said applies more particularly to grey goods. In delivering colored goods, dobby weaves, etc., the problem is made more difficult because of the patterns and shading of colors, because of the proper repeat of dobby figures and because of other requirements already known to you and which we have not the time to discuss in detail.

"And now, before closing, I believe it will be of interest to narrate several special problems concerning deliveries that have come to my attention in New York.

"I recall a mill that had produced about 300,000 yards of sheetings most of which contained a tiny pin-hole every twenty inches. Of course, pin hole damage can occur at the finishing plant, but in this case, it was found that the damage was caused by a small wire nail maliciously placed in an emery roll on a brusher and was not detected until the yardage had been shipped. The pin-hole could hardly be seen in the unfinished fabric, but when the goods were bleached and put under tension, it pulled out into a real hole. The damage came within the class known as a 'latent' or 'hidden' imperfection, one that could not be seen from a reasonable inspection of the grey goods at the finishing plant. 'Hidden' imperfections cause real trouble because the grey mill is responsible for the customer's loss. In the case referred to the mill traced each shipment and made adjustments as fast as possible where the merchandise had been processed. Where the goods had not been processed, they were of course replaced promptly.

"And I am here reminded of a matter on which there is a little difference of opinion at present. I refer to the inspection of grey goods at a finishing plant before processing them. Legally, a converter when he buys merchandise must inspect the goods within a reasonable time to see that he got what he bought and that principal can be maintained in court and undoubtedly in arbitration. But I want to point out that should a mill make a poor delivery as regards quality and the goods are processed without inspection, there are certain conditions under which the mill is responsible for a portion of the loss; and furthermore, disputes arising from poor deliveries are always unsatisfactory and settlements are costly when they must be made by arbitration or court procedure. Therefore it behooves the grey mill to see that merchandise is properly inspected before it is shipped.

"Another case I might mention occurred a few years ago. A converter bought a quantity of special dobby figured goods and by the time they were delivered, the season had passed. So the converter paid for the goods and had them stored in a warehouse until about eight months later when the merchandise was ordered into process. Then it was discovered that the goods were full of imperfections and obviously seconds. The mill investigated and acknowledged they were seconds but refused to take back the goods because the claim had not been made by the converter within a reasonable time. Meantime, the market had declined

during the eight months since the goods were delivered. The case went to the arbitration and since the mill would not waive the element of time, the decision was made in favor of the mill. The converter could readily have inspected the goods sooner, but had failed to do so.

"I know of a different case that was lost by another southern mill. The mill was outside of a small town and they requested the railroad to place a car on their siding for a solid car shipment to a distant point. The empty car when placed had molasses all over the bottom and sides and probably to save time, the mill lined the car with a layer of thin baling paper and loaded it for shipment. When the car reached its destination, many thousands of yards of goods were damaged. The mill tried to claim the railroad should not have furnished such a car for cotton goods. Later the mill learned that if the empty car was not in proper condition for moving cotton goods, the car should have been refused by them and the loss for the damage was paid utimately by the mill.

"Another case settled by arbitration only a short time ago, is somewhat different from the preceding ones. A colored goods mill had for a number of years been making a line of ginghams that were sold under a specific brand or ticket. The mill sold a customer a quantity of these goods under the regular brand. Shortly thereafter there was a sharp decline in the market and later the mill shipped the ginghams. The customer rejected the entire shipment, claiming that the merchandise contained weaving and other imperfections and was not a good delivery on the contract. The case was submitted to arbitration. Now, it was a fact that the goods did contain occasional minor imperfections as claimed by the customer but the mill showed conclusively that this particular brand had *always* contained the same imperfections. In other words, it was shown that the mill had delivered to this customer their regular branded or ticketed quality regardless of the imperfections and the arbitration committee decided in favor of the mill.

"In conclusion, the cotton mill industry during the past few months has suffered severely from keen competition and from the decline in prices. It is my humble opinion, that much of the worry and anxiety of manufacturing would be eliminated if a concerted effort were made by every mill to produce a quality of merchandise that would include the mill among those best known in the trade for 'Delivering the Goods'."

Carding Division

The next item was the report of the Carding Division, by J. O. Corn, chairman. This consisted of a recapitulation of the compilation of figures made at the meeting of the division held in Spartanburg, S. C., on April 2nd, looking toward arriving at what is considered the general practice with reference to various points in the card room. Since this comprised mostly the tabulation of the figures, and since these figures were given entirely complete in the May issue of COTTON, the report is not used here, and the reader is referred to the story beginning on page 620 of the May issue of COTTON for the complete tabulation of these figures. The conclusions of Mr. Corn, based on the figures, in working toward what might be termed "standards," in the group including the yarn numbers from 30s to 40s are given: Mixing of ten bales with either the vertical or horizontal opener. Two processes of picking with either single or double sections. Beater speeds—breaker, three-wing blade, 900 r.p.m.; intermediate and second section of breaker, two-wing blade, 1,200 r.p.m.; finisher Kirschner, 1,000 r.p.m. Card sliver, from 45 to 50 grains. Production per card per week, 575 to 600 pounds. Two-process drawing, with a 1¼-inch roll at 300 r.p.m., and other sizes in proportion. With sliver weights from 50 to 55 grains and a draft of 5.5 to 6. Slubbers, for both warp and filling, .75 hank roving. Roll speed of 160 r.p.m., on a 1¼-inch roll, with a twist multiple of 1.30 and draft of 4¼ to 4½. Intermediates, for both warp and filling, 2.00 hank roving, roll speed of 122 on a 1 3/16-inch roll, with a twist multiple of 1.30, and draft of 5½ to 6. Warp speeders, 5.75 to 6.00 hank roving, with a twist multiple of 1.55 to 1.60, draft of 6.15. Filling speeders, 7.00 to 7.25 hank roving, roll speed of 88, with a twist multiple of 1.55 to 1.65.

In connection with his report, Mr. Corn presented three interesting tables showing comparative costs of production between various lay-outs and speeds. These tables are presented herewith, and will be of interest to the mill man who cares to study them.

Comparison in cost between two- and three-process picking with same production:

Two-Process	.4420c per pound
Three-Process	.5695c per pound

Comparison in cost on cards with the following production:

500 pounds per week	.9358c per pound
575 " " "	.8092c " "
675 " " "	.6893c " "

Comparison on slubber with the following hank roving and speeds they require:

.60 Hank Roving	175 R.P.M.	.2299c per pound
.75 " "	160 "	.3143c " "
.85 " "	150 "	.3799c " "

Comparison of .75 hank roving with the following speeds:

.75 Hank Roving	141 R.P.M.	.3566c per pound
.75 " "	160 "	.3143c " "
.75 " "	181 "	.2778c " "

Comparison of the following intermediate roving and speeds:

1.60 Hank Roving	163 R.P.M.	.3657c per pound
2.00 " "	122 "	.6107c " "
2.25 " "	108 "	.7762c " "

Same roving with following speeds:

2.00 Hank Roving	115 R.P.M.	.6479c per pound
2.00 " "	122 "	.6107c " "
2.00 " "	150 "	.4967c " "

Accumulated Cost—Heavy roving and card production:

	Cost per Pound Warp	Cost per Pound Filling
2 Process Picking	.4420	.4420
675 Lb. Card Production	.6893	.6893
.60 Hank, 175 Front Roll Speed	.2299	.2299
1.60 Hank .163 " " "	.3657	.3657
5.00 Hank 110 " " "	1.0072	.....
5.95 Hank 100 " " "	.....	1.3149
Total	2.7341	3.0418

Accumulated Cost—Light card production and light roving:

	Cost per Pound Warp	Cost per Pound Filling
3 Process Picking	.5695	.5695
500 Lb. Card Production	.9358	.9358
.85 Hank Slubber, 150 R.P.M.	.3799	.3799
2.25 Hank Inter. 108 R.P.M.	.7762	.7762
6.00 Hank Warp, 98 R.P.M.	1.3568	.....
7.50 Hank Filling, 80 R.P.M.	.....	2.1970
Total	4.0182	4.8584

Accumulated Difference in the two foregoing tables:

2 and 3 Process	.1275	.1275
675 Lb. and 500 Lb.	.2465	.2465
.60 Hank and .85 Hank Roving	.1500	.1500
1.60 Hank and 2.25 Hank Roving	4105	.4105
5.00 Hank and 6.00 Hank Roving	.3496	.....
5.95 Hank and 7.50 Hank Roving	.....	.8821
Total	1.2841	1.8166

Warp Speeders—No front roll speeds reported.

Comparison between three hank rovings with same front roll speed:

	Cost per Pound
5.00 Hank Roving	1.0072c
5.75 Hank Roving	1.2495c
6.00 Hank Roving	1.3568c

Comparison of filling roving and speeds:

	Cost per Pound
5.95 Hank Roving—100 R.P.M.	1.3149c
7.00 Hank Roving— 88 R.P.M.	1.7582c
7.50 Hank Roving— 80 R.P.M.	2.1970c

Same Hank Roving with Three Different Speeds:

	Cost per Pound
7.00 Hank Roving— 83 R.P.M.	1.8629c
7.00 Hank Roving— 88 R.P.M.	1.7582s
7.00 Hank Roving—103 R.P.M.	1.5020c

Spinning Division

Carl R. Harris, chairman of the Spinning Division, next made a report on the meeting of this division held at Raleigh, N. C., on February 5th, saying, in part:

"I would first like to call your attention to several problems of equipment about which it would be hard to estimate the influence, or thought that has been brought to bear by our discussions.

"Take the question of warp wind versus filling wind. This has been discussed considerably and I might say has been sponsored for some time by the spinning division. It has been adopted by a very large number of mills, and today I know of several of the most conservatively managed mills that are considering adopting it.

"In this connection, I would like to call your attention to the combination warp and filling wind. Some few mills are experimenting with it and seem to be getting very nice results. So far, I do not see as much to be gained from its use as the straight filling wind. Though, there may be some cases where it is not practical to adopt the filling build, that the combination build could be used to advantage. And it is entirely possible for it to prove more beneficial in all cases. That is something which we will have to work out, and tests are being started in several places to determine this.

"In the question of No. 2 flange ring versus No. 1 flange—insofar as it has come to my attention, it seems to be a firmly established fact that the No. 1 flange gives many advantages over the No. 2, especially on medium and fine yarns, and it is being generally adopted by mills renewing their rings.

"Where new spinning is being bought, the tape drive for spindles is being universally adopted and at a higher first cost. In fact, I can point you to one or two cases where additional spinning had to be bought about the time our discussion was dealing with that subject, tape drive was specified, and I have since been told that our discussions prompted the desire to find out if it really was better.

"Do not misunderstand me to say that the Southern Textile Association, or the spinning division, has been entirely responsible for these improvements being adopted as standards. I do not wish to imply that at all, but I do believe we can safely say that through our discussions, the changes have been brought about many years sooner than would have been the case otherwise. It has given our employers food for thought as well as the members of this Association. I believe, also, that you will find the average spinning room (and the other departments) kept in much better shape today than you would have before the starting of the sectional meetings. This is in no wise attributable to the fact that we as foremen were not doing our best at that time, but rather due to the fact that the exchange of ideas has given us new lines of thought.

"Let me quote from a statement made at a recent meeting: 'I went to a textile meeting several years ago and came back very much enthused, and found that lots of variation in spinning can be traced to difference in size and tension of the bands, condition of the rollers, condition of the levers, stirrups, etc.'

"We have tried at a number of meetings to get information on spindle speeds and I am glad to report that our last two meetings have made some headway in this direction. I have some data on numbers ranging from 6s to 60s, but will only give you those upon which we have enough reports to get a fair working basis. After this we wish to get complete details, but at this time we can only give you the cotton used, spindle speed, hank roving and twist multiple in the yarn. We haven't enough of the other information given to make it a fair average.

	Spindle Speed	Hank Roving	Yarn Twist Multiple
20s Yarn using 7/8-Inch Middling Cotton			
High	8200	4.20	4.75
Low	8000	3.30	4.60
Average	8066	3.83	4.61
20s Yarn using 1-Inch G. M. and S. M. Cotton			
High	8300	4.10	3.50
Low	7023	3.95	3.30
Average	7800	4.00	3.45
23s Yarn using 1-Inch Strict Middling Cotton			
High	8800	4.50	4.75
Low	8000	4.20	4.58
Average	8490	4.32	4.66
26s Yarn using 1-Inch Middling Cotton			
High	9500	5.00	4.75
Low	9200	4.60	4.68
Average	9366	4.73	4.72
30s Yarn using 1-Inch Middling Cotton			
High	10200	6.25	4.87
Low	8800	5.25	4.50
Average	9435	5.77	4.74
40s Yarn using 1 1/16-Inch Middling Cotton			
High	9200	7.00	3.75
Low	8800	6.60	3.50
Average	8933	6.83	3.58
50s Yarn using 1 3/16-Inch S. M. Cotton			
High	9600	10.00	4.00
Low	9300	8.33	3.30
Average	9428	9.12	3.61

"Most of us have felt that to undertake the standardization of cotton manufacturing, as has already been done in the steel, automobile, cement and numerous other industries that we might mention, it was such a stupendous undertaking that we have shuddered at the thought, so to speak. But is it such a big task after all?

"For years we have been accepting standards as set up by those who did not have to operate our mills. And I might say that it is a very rare thing to find a mill operating up to those standards. Therefore, it is quite evident that they are wrong, or we are very much at fault in our operating.

"If we could give you information to show that the majority of mills on 30s yarn using 1-inch cotton were operating in practically the same manner and getting certain results, wouldn't you feel that you had about as near a standard as it is posible to get? That is a very easy thing for us to do with the cooperation that I know we can expect from you gentlemen. This is just one of the many things that eventually we wish to accomplish. Now let me insist that you be prepared to give us the following information at our next spinners meeting or when called upon for it: Number of yarn being spun. Grade and staple of cotton. Hank roving. Twist multiple used in the roving. Setting of rolls, center to center. R.p.m. of front roll. Twist multiple used in the yarn. Size of ring and flange. Weight in grains of 10 travelers. Gauge of frame. Separators or not. Inches traveled by rail in one minute. Kind of wind for warp yarn. Spindle speed. Length of traverse. Length of stroke. Description or drawing of bobbin."

F. Gordon Cobb, secretary-treasurer, made his report briefly and informally, outlining the developments and activities in his offices during the past year, which have been covered in detail previously.

He pointed out, in connection with the standardization plans, and during the past year, the Southern Textile Association had been recognized to the extent that now no standard so far as federal contracts are concerned can be determined until the Association has had an opportunity to criticize it.

Mr. Cobb announced a request from S. B. Alexander, southern representative, Crompton & Knowles Loom Works, Charlotte, N. C., to be permitted to award each year a medal or trophy to the man selected by the Association's board of governors as having done the most good for

the industry from a manufacturing standpoint. This was referred to the board of governors with the request that a report be made at the Saturday session.

Mr. Cobb's remarks concluded the Friday session. The afternoon was spent by the delegates in swimming, fishing and following the other diversions offered by the seashore resort.

Friday night a banquet was scheduled, but failed to put in its appearance. The members gathered around the tables expectantly,b ut through some misunderstanding, a very uncreditable meal was finally placed before them. Everyone took it good-naturedly, however, and the disappointment was somewhat alleviated by the appearance of a troupe of local young ladies in aesthetic dances, and by several good numbers by the Cramerton (N. C.) vocal quartette.

Saturday morning the session was opened by President Grimes, who, as the first feature, read the annual address of the president, saying in part:

President's Address

"If you were to read the presidents' addresses before the annual meetings of this association for the past several years, and compile the concensus of the descriptions of the situation into one general statement, you would find that they would be very similar to one another, and that they also would exactly fit the present day conditions in the industry. Among the things which have been invariably mentioned by our retiring presidents have been curtailed running schedules, the needs of more efficient methods in our mill operations, quality of product, etc.

"The mill managers are complaining of over production, lack of profits, difficulty of selling, and other points along the same lines. The conditions complained of do not seem to be improving but seem to be growing worse each year and are conditions with which most of you are familiar.

"My intention, therefore, is not to repeat to you facts which are familiar to each of you in the daily dispatch of your own business and the solution of your local problems. However, in the face of conditions which have existed for the past five years, and with a continued growth in the industry I do not see how we can expect our problems to become less, but rather they will be greater as competition becomes keener. Mills which are barely able to meet expenses or which are now making a very small profit will not be able, in my opinion, to do any better in the near future unless some very radical changes are made by them individually, or by the industry as a whole.

"Apart from manufacturing, with which we as an Association are concerned, and which constitutes the immediate duty of most of us individully at our own plants, the solution of the industry's major problems, and the correction of the more important ailments now afflicting it, are not directly within the province of the men who compose this organization. We must, however, recognize, that our assistance and cooperation can be utilized within the limits of our own sphere.

It is my sincere conviction that we can depend upon the best minds among the financial executives in the industry to lead the way in solving the problems which confront the mills today. At the present time there is under way a movement, looking toward the organization of a central body for the industry, that has progressed with wholesome rapidity and in a manner which indicates the possibility of concrete action in the immediate future. This is the plan for what is to be known at the Cotton Textile Institute, which is designed to induce a cooperative spirit among manufacturers, to provide statistics relating to supply and demand, and other information. As outlined by George S. Harris, who sponsored the plan and who has presented it before the meetings of financial executives this year, the functions of the proposed body would be to: Secure, tabulate and distribute data covering all phases of industry and commerce affecting cotton textiles. Check and advise the entire industry and trade. Publish periodically a price index by construction groups, including all yarns. Conduct group advertising at home and abroad. Conduct research relating to the extension of the use of cotton textiles. Direct group activities in export trade. Direct in all legislation affecting cotton textiles. Direct as to trade customs, settlement of disputes, etc., and to coordinate the work of existing associations.

"The organization would, of course, embrace all factors in the textile business, including the manufacturers, converters, wholesalers, retailers, and others. The operating force, we understand, would consist of a board of directors, a director general, similar to the director generals found in the moving picture industry, professional baseball, etc.; a chief statistician, technical experts as required, and a legal director.

"The work of forming this proposed central body is in the hands of a carefully selected and most competent group of leaders picked from the outstanding men of the textile industry, both northern and southern. Undoubtedly some effective measures will result from their united and cooperative efforts. While the members of this Association, or the organization as a body officially have no function in the organization of such a proposition, for it is properly in the hands of the mill owners, I am bringing it to your attention to impress upon you that right at the present time a unified organized effort is being made that holds hope of salutary results for our industry as a whole and for our individual mills. Also, I feel, it would not be presumptuous for us, as a body, to record our endorsement of such a movement that seems destined ultimately to correct many existing difficulties in our industry, and for this reason I would strongly approve a resolution at this meeting supporting our executive officers in their plans in this direction.

"Furthermore, I feel sure, as further progress is made on the plan, the operating executives of our mills will be called upon for specific assistance along lines falling within the limits of their prescribed activities. We should thoroughly acquaint ourselves with the plans, so that when called, we may be ready to serve to the best of our ability.

"Considering now in particular the activity and work of our own organization during the year of my incumbency, those of you who have had even a casual interest are familiar with the plans of this Association for, and the progress thus far made toward, the establishment of textile standards. At the meeting here yesterday and today, the reports presented to you by the divisional chairman and the secretary have advised you of what has been done in each department ,as well as something of the plans for the future. It has been gratifying to the officers who retire today to see the marvelous progress which has been made on this matter within the last few months, and we would bespeak for those in whose charge the work will

continue, that each of you give every bit of support requested. Already it has become evident that in exact proportion to the way the individual members respond with their help, does this work move forward. This subject has been so thoroughly covered in the detailed reports that I shall not discuss it further, except to remind you that there is a crying need for standards in our industry—and you are the very men upon whose shoulders, in large measure, the work must fall. With the splendid start already made, you must not fail to lend your efforts toward its continuance along useful lines.

"Now, as never before, probably, the mill managers should continue to try to get them to send their superintendents and different department heads to the meetings of the Association and to the sectional meetings and to encourage them to take an active part in the proceedings of the meetings. We, of course, know that the superintendent and each department head cannot be sent to each sectional meeting and every meeting of the Southern Textile Association, but the right man can be selected and sent to the different meetings.

"Although it has no definite connection with our Association, I would like to comment upon the recently-organized Arkwrights, Inc., as an outstanding development of the past year. This, as you know, is to include in its membership the operating executives and others in our industry who have excelled in the completing of some task or test relating to mill work, which has been assigned to them by the research committee. Your present secretary, Mr. Cobb, is president of this organization. I commend it to your consideration, because I am sure that properly operated the results of its work can exert an important influence upon the work of meeting and coping with our individual daily problems.

"Indeed, the co-incidence of these two movements among the operating executives—that is, standardization and testing or research with the plans of the financial executives to which I have referred, seems, to my mind, to emphasize, first, the importance of our position as operating executives in plans for improving the industry, and second, the opportunity we have to be of service in this direction; as well as to provide for our use well-defined channels of activity in utilizing our privilege of fulfilling our responsibilities. Within the brief space of the past year, the developments I have mentioned have brought our industry to a situation it has never occupied before. More than a start has been made toward remedies of existing conditions which will be permanent and far-reaching in their results. Hopeful as it may be, however, and enthusiastic as we may find ourselves as to the outlook along these lines, in the last analysis we must face the unalterable fact, which by repetition and familiarity, may seem bromidic to many of you and that is, that every single man concerned must offer a full and complete cooperation, else failure is sure to be the fate of any plan.

"Just as the industry faces an unprecedented situation, so our Association has come to a crisis. To fall back, to stand idle even, would be to fail. The developments of the past year have provided for us the ground-work for effective progress, and we retire from office today, who have watched with gratification the laying of the foundation, are sincerely hopeful and urge that in the future, as a result of capable, earnest leaders and a whole-hearted assistance from everyone, that the building will continue and be formed into an enduring structure, serving the industry and those who play a part in its erection.

"The opportunity you have given me of serving as your president during the past year has given me a particular pleasure and a not unnatural pride. As perhaps an average member for a number of years, I have attended the meetings of the Association with pleasure and profit. As an officer, my contact with the leaders in this body have given me a deeper realization of the possibilities that lie fallow in its membership, of what can be accomplished by this Association. My last word is a sincere request to each of you to continue and enlarge your interest in the work, to offer your suggestions. We shall continue to make progress just so long as we attend the meetings and take an interest in the association's activities. The more interest we take, the more members who attend, and use their minds in constructive thought for the good of the association, the more progress will be made. The association needs now and will always need the help and constructive thought of the members."

Weaving Division

L. L. Brown, chairman of the Weaving Division, next reported on the meeting held at Anderson, S. C., on June 18th, saying:

"The object of this meeting was to make a start at the Standardization of Print Cloth, that is: what tolerance in the way of defects will be allowed in a piece of Commercial Firsts? On the face this seems to be an insurmountable proposition. We all know that the art of weaving antidates all of the known arts, and that it has been individualistic. Its very origin made it so, until fairly recent years. But today we grind out print cloth by the million of yards and by this mass production we stamp out the art of weaving, and substitute a machine made piece of cloth, yard after yard, alike as the sands of the sea.

"You can see that print cloths are already standardized. What we want to do now is to standardize on the 'Grading.' It matters not how staggering this proposition seems to be, it can be done.

"In the discussion at our last meeting one member stated that we could set no standard, that is, that the mills could set no standard, the buyer is the one who has the final say. Of course it would be foolhardy to think that the mills, through this or any other association would try to set a standard and thrust it upon the trade regardless of whether it wanted it or not. It is the inalienable right of the buyer to buy that which he chooses, therefore let the buyer set the standard, but get this: once that standard is set, let it be the same today, yesterday and tomorrow. Let that standard be the same whether it be a rising or falling market.

"It is the unscrupulous buyer who will object to a standard, for a standard in grading will close up many of the loop-holes by which he can sneak out.

"At our meeting in Anderson, we had about forty pieces of standard construction print cloth, coming from twenty different mills. Some of these pieces were 'firsts' and some 'seconds.' The 'firsts' were just on the dividing line between firsts and seconds, and the 'seconds' were just on the dividing line between seconds and firsts.

The idea of having the 'firsts' just on the dividing line, was not an attempt to lower the grading, but to get at the most defects within a short space.

"Owing to the lack of room in the Club House (the

meeting was held at the Country Club) the cloth had to be inspected and graded in the open. Bench-made tables were placed under the shade trees surrounding the Club House. Of course under these conditions it was impossible to get the best results in grading. In the absence of a Joshua a tree doesn't cast its shadow in the same place for very long. However, under these trying conditions of a glaring light and at times strong winds, we accomplished that which we set out to do: that is, to get the idea across of what we are attempting to do and to show our members that there is a wide difference of opinion at the present time in the grading of cloth. For instance take one piece, number 15. The grading on this piece was equally divided, 20 men called it 'firsts' and 20 called it 'seconds.' The mill that submitted this piece called it 'firsts.' It would seem from the above grading, that this particular piece of cloth has only a 50-50 chance of going into 'firsts.' However, I will analyze the grading of this particular piece and show that it has a greater chance than that, and also at the same time point out some of the faults in our first meeting and later on take up the subject of how to overcome these faults in grading. All of the 20 men who grades this as 'first' are at the present time employed in print cloth mills, and of the 20 who graded it as 'seconds' only nine were so employed, the other eleven are either on fancies or sheeting. You can see that one of our faults at this meeting was not having the cloth graded by print cloth men only.

"We will take up only one more piece to show the diversity of opinion in grading. Take piece number 25. The mill submitting this piece called it 'seconds.' Yet in grading it at Anderson this piece got practically a 50-50 break, 17 called it 'firsts' and 18 called it 'seconds.' Of the 18 who called it 'seconds,' nine were on fancies or sheeting and 4 were men from the mill submitting the piece. (No, gentlemen, that piece was not from the speaker's mill, however, this mill is a fairly close neighbor, and I feel a distinction in that).

"Now the question is this, is the mill that submitted piece number 25 grading too close and thereby penalizing itself, (unless it gets as much for 'seconds' as it does for 'firsts,' and by the way it says it does), or are the other mills grading too lax?

"It was the concensus of opinion at Anderson that to properly grade cloth the physical condition and 'atmosphere' should be that of a cloth room and that, that condition can not be had at our Divisional Meeting. It was suggested that the chairman get up as many pieces of cloth as he thinks necessary and have this cloth placed in some convenient place and then let the cloth room overseers and superintendents come in small groups, say twenty at a time, inspect and grade this cloth, leaving their findings with the chairman.

"The afternoon session of our meeting was given up mostly to the subject of how to make a start at standardization of grading, even after you have the cloth graded, because there is such a wide difference of opinion in the grading.

"Every piece of cloth has some defects, or I might say a combination of defects. There are no two pieces alike, that is, their combination of defect is notable, so therefore it is apparent that no one or a dozen pieces can be set aside and called standardized as to grade, and exhibited as samples to go by. It is absolutely necessary to approach the subject from some other angle.

"I believe the only solution to this is to have some measure of valuation expressed numerically, given to each defect and the sum-total of these defects determine the 'grade' of the cloth. At the present time all cloth is either 'firsts' or 'seconds.' With the suggested system there would be any number of grades.

"For the sake of argument let us take an example and say that we will allow 200 points tolerance in a piece of cloth and still call it 'firsts.'

"Now suppose we take three pieces of cloth and upon grading we find the first piece has only 50 points, the second piece 100 points, and the third piece 200 points tolerance against them. All three of these pieces will go into 'firsts' but are all three of them equal in value?

Another very important matter is how to arrive at a specific valuation for the different defects. All of this will have to be worked out, but it can be done. One way to approach this is to take a piece of print cloth, that is, an acceptable 'firsts' for printing (not for some other purpose) and give to each defect a value according to its degree, so that the sum-total of these defects will amount to 200 points. By taking a large number of pieces and analizing the same way, an accurate valuation can be placed upon each and every kind of defect."

The association next went into business session, the first feature being the creation of the office of executive secretary. T. W. Mullen, G. H. Leitner and C. P. Thompson were named as a committee to re-write the by-laws of the organization.

On motion of Marshall Dilling, the Association voted to transfer to the newly-organized Arkwrights, Inc., the fund previously collected in the name of the Textile Foundation, to be used for textile research and experiment.

The report of the resolutions committee, made by Robert W. Philip, which was adopted, thanked the speakers and entertainers, and also endorsed the proposed Cotton Textile Institute.

The next feature was the election of officers with the results which have already been given. Carl R. Harris chairman of the board of governors, announced that that body had unanimously selected F. Gordon Cobb as the recipient of the medal proferred by Mr. Alexander.

James A. Greer presented the retiring president, Mr. Grimes, with the Association medal, following which the convention was adjourned.

Meeting of Arkwrights, Inc.

On Friday afternoon, July 16th, during the convention of the Southern Textile Association at Tybee Beach, the first meeting of the newly-formed Arkwrights, Inc., was held, with all directors and officers attending. This organization was formed some weeks ago with a view to promoting textile research and testing. Membership may be applied for by members of the Southern Textile Association, and the research committee will assign the applicant some kind of textile test, which must be satisfactorily completed before membership is granted.

F. Gordon Cobb is president of the organization; Frank S. Dennis is vice-president; J. T. Hilton is temporary secretary-treasurer; and Marshall Dilling, L. L. Brown and Carl R. Harris compose the research committee. The following are the directors: F. Gordon Cobb, Frank S. Dennis, W. H. Gibson, Jr., David Clark, Robert W. Phillip. H. H. Boyd, Marshill Dilling, Carl R. Harris, G. A. Franklin, L. L. Brown, O. D. Grimes, and J. O. Corn.

Zachariah Rides the Alligator

BY U. DODGE

"Sho wuz a fine convention. Niggers from 'most eve'ywhere. All shades, I reckon. Wasn't there my ownse'f. I git lost on de alligator."

The office boy of the Whatsname Mill gave a couple of perfunctory swipes with a rag at a dust coated mantel in the superintendent's office and took a sidelong glance at the gray head bent over the big yellow paper on the desk. Boss busy. Mighty important paper. A sense of inopportuneness choked his reminiscences temporarily, but not for long. His wrongs, welling to the surface, found an audible vent regardless. Boss didn't have to lissen.

"Find me de building where de convention at, an' dey aint no steps. Atlanta folks sho is curious. Git offen de train an' hafta wait till a bell ring to cross de street. Hafta walk a chalk line on de ground or git runned over. Big high house and no steps to git up. Eve'ybody in a hurry. Uppety nigger with a quart cup on his haid fuh a cap, stan' by a little iron room in de hall an' say 'Hey, Country, ain't yuh feared de cows gwine eat yuh?' "

"I say 'whereat de pair of steps to de nex' flo'?' an' he laugh. I say 'I been elected to de convention of de Sons an' Daughters of On High, an' I aims to git up to dey level.' So he laugh some more an' say 'Take de alligator.' "

"Not me. Niggers an' alligators don't mix. Folks kep' going in de little room an' jus' standing up together, an' de men folks took offen dey hats. Sho look curious. I say 'wheret's de alligator? I don't need him, but I'll look,' an' he say, 'Come on in here.' Time I git in he shet de do' an right den de foundations give way to de house an' she slide right on down in de ground. All excusing de little room we in. Hit stan' still an' de building jus' kep going by. Uppety nigger say 'Yo' number is eleven,' an' right den a high brown gal next to me shout 'Seven'. Make me fergit I'se on a chu'ch convention and also what's going to happen when dat house roof flattens down on us. Somebody holler 'Two' and things happen right quick. De house an' us little room quit slipping an' git together. Everything stop at about the third flo' excep' me. I kep' right on going up. Hit feel so, anyway. Time my pussonality git up by de roof an' look back and see I ain't coming, hit come down agin an' settle quiet in my innards. Sho is a curious feeling."

"White lady git out an' we slipped agin. High Brown holler 'Seven,' so I yell 'Eleven' to make it even. Uppety nigger shove a handle an' hyuh come de funny feeling agin. Pussonality up around de moon, jus' looking back. Uppety open de do' an' de high brown git out. Me, too. 'Fraid to try dat any more. Pussonality might not git back nex' time. High Brown say, 'Hey, Country, ain't yuh feared de cows—"

"Shut up!" yelled Mr. Watt Tell the superintendent, waving the piece of paper at the office boy. "Don't you see I'm busy? Here I've got to figure out for the president just how much our filling waste is for the week, and you keep on jawing worse than a radio. This piece of paper isn't big enough, anyway. Go get he a bigger piece of paper."

"Yassuh. Sho glad dis place all on one flo' seusing de upstairs where de big boss at. Hadda been all on one flo', pussonality wouldn'ta git lost on de alligator. I lef' my pussonality in dat little iron room what go up, and ack scandolious. Chu'ch done th'owed me out. Too bad."

"Personality," said Mr. Tell, throwing down his pencil and laying the piece of paper carefully in the waste basket, "is one of the greatest assets a man can have, and one of the hardest things to keep. I didn't know you had any, Zach, but I'd like to hear what happened when you lost it."

"Happen a plenty," said the office boy, mopping his brow with the dust cloth. "I thought, honest, dat wuz de convention. I ax de high brown gal 'Is dis hit?' an' she say 'Why sutt'nly, of co'se,' so I went on in. Hit were a office like dis, only mo' niggers an' mo' deskses. Long table in de middle where we sits down at . Eve'ybody quit work an' come 'round. Bigges' nigger from de bigges' desk say, 'Country, what you got?' and I say 'Credentials' ".

" 'Pay yo' dues', he say an' I lay down a dollar which is what de dues is. Eve'ybody's eyes stick out like doknobs, but dey borry from one nother 'till dey each gits a dollar on de table. Big man git a little box an' take out six little white blocks, look like dices, only dey ain't got no spots. Put spots on wid a pencil. Shoven 'em out an' say 'Read 'em Country, an' beemoan yo' fate.' Right dere where de ruckus start at. Pussonality done gone. Fust roll—"

"Do you mean to say," asked Mr. Tell in a horrified voice, "that you went to a church convention and shot craps instead of attending the meeting?"

"Nawsuh. High dices. Fust roll, I th'owed a six, five, fo', three, two, one. How much dat add up? High brown gal wuz next and when she shake 'em up in her fist she blowed th'ough 'em and whilst she wuz ablowing, she eat one. Never did know before you could eat dices. Den she an' eve'ybody else th'owed five dices agin my six. I come out ahead. I lets 'em lay. Next go-round I th'ows five dices and she eats another and dey all th'ows fo'. I lets 'em lay. Den de big man opens de office safe. 'Dis Insurance Company,' he say, 'either win or go bus'. Next' roll—"

"I'm surprised at you," said Mr. Tell. "Here I've been setting you a good example for a great many years, and that's what comes of it. Helping to rob the safe, too."

"Nawsuh, lissen. Big man wring his han's an' moan. Git all de money outen de safe. Sixth an' las' go-round—lissen, boss, lissen—"

"I won't listen," said Mr. Tell. Go get me that big piece of paper so I can figure the filling waste. You are just like a lot of other people who lose their personality just as soon as they get up off the ground a piece. They get above themselves.

"The constitution says we are all created free and equal, which isn't quite true looking at the situation from all viewpoints; not these days, anyway. But there are some things that we are pretty well equal with at the start, and this thing they call personality is one of them. We are all born with the same amount, which is none at all. In course of time and due to circumstances we do, all of us, manage

somehow to acquire some sort of a collection of character, brains, morals and looks. It can't be said that the collection is at all times a good one. Sometimes the character leaves a great deal to be desired, the morals are conspicuous by their absence, the brains if any are all gummed up and the looks are plumb painful, but thank goodness, all of these calamities hardly ever hit in the same place at one time. Most of us average up around strict low middling, and all of these things together make that which, in the language of the dictionary, constitutes distinction of person.

"The trouble with the darn thing is that it is so easy to lose. Something happens and it is gone. Furthermore, my experience has been that there is more good personality lost through prosperity than through adversity. Starting from the ground to work up, a young fellow may have the best kind of a personality. Everybody will like him. He will be a good hard worker and ambitious. He will be bright, cheerful, good looking, and able to play the saxophone and do the Charleston at the same time. He will excel at all the manly sports, including singing in the church choir, and his friends, relatives, and even his boss will think the world and all of him—until he gets a little up in the world.

"Just as soon as his elevator starts elevating he begins to change. His personality starts going up. That's all right if it doesn't get too far ahead of him, or if he manages to keep up with it. As a man grows, it is necessary for him to change to a certain extent to keep up with his changed conditions. In fact he must stay ahead of himself. Nobody ever got promoted from ordinary plug hand to a fixer's job until he acquired the fixer's outlook, and to a certain extent, his experience. Then if he starts his personality off to a higher level and lets it sashay around while in the high and rarefied air inhabited by second hands and overseers, no doubt in course of time he finds himself able actually to make the step up to their level. By that time, his personality should be up around where the superintendents are. There isn't a doubt in the world that he would continue to be the plug hand right on if he didn't hoist himself in this manner, by the boot straps, you might say. It is the only way to progress, and no other way ever has or ever will be found.

"The hard thing to do, is not to let your personality get too far ahead of you. Benjamin Franklin said that if a man got to be too good for his job, his job would soon be too good for him. Abraham Lincoln said a man's legs should always be long enough to touch the ground. They both meant the same thing. It's sort of like having a gap between your pants and vest. A small gap is all right and proper. It indicates that you are enjoying the good things of life and filling out comfortably. Too much space, however, can get to be positively indecent, and not indicate a thing except that your suspenders are busted. What you want to be careful about is that you don't let too great a distance grow between your personality and your present position.

"The reason is that everybody's elevator stops somewhere. When that happens, look out. In fact, it's a fortunate guy that can tell when it stops. There are lots of folks who are off the elevator and don't know it. They think they are still going up. It's sad, of course, but what can you do about it? They think they are still upward bound, when as a matter of fact they are steadily plodding down the stairs on the way back to the street. Where's their personality all this time? Still going up.

"They have reached their level. There they are going to stay. Of course they don't know it, yet. None of us do, at first. We think we are still upward bound. We look at the moon and think that's our face up there. Sometimes it is, but not with most of us.

"Then we come some time to the realization of the fact that we are off the elevator; that however ambitious we are to go up still more, we have to stop where we are, and with some of us it's a critical time, I'll tell you. Some folks live on success. The more they get of it, the harder they work for it which is right, of course. But how about when a fellow realizes that no matter how much harder he works, his success, such as it is and as much as it is, will not be on any higher plane henceforth, but will stay on the same level; that he has reached his notch and there must stay. Sort of discouraging, you say. Yes, but not necessarily fatal. All he has to do is to jerk his personality down to within a reasonable distance, leaving it a little above where he is, for emergencies, and the chances are that he hasn't reached his last notch after all.

"If he goes at it in that spirit, he hasn't. In fact a slow plodding up the stairs is better for most folks than a quick ride in the elevator. They get used to the climate on the way. The guy that hits the toboggan and can't quit slipping is generally the one who went up too fast. They who walk with their heads in the clouds, says the old proverb, shall stumble on the earth, which means—well, you know what it means. I've seen section men with superintendent's airs. Not ability, mind you, nor ideas, but airs. I've seen more than one super that you would think owned the mill and was just about to fire the president—the kind that can talk about millions of dollars and then borrow a dime from the office boy to get some chewing tobacco with. As for presidents, when they get that way—oh boy! Enough said.

"Folks like that always give me a large pain. If you examine them closely you will find that in most all cases, their biggety ways are due to success—very small success in most cases, but too big for them, and too sudden. Adversity makes a man humble. It tightens his belt and hardens his grit. Success swells him up. He gets dignity. His egotism gets so ponderous it doesn't give his brains a chance to work. He hums and haws. He struts. He squeaks all over with a sense of his own importance. His elevator stops about that time, but he doesn't know it. He has arrived, but he thinks he is still going up. First thing you know he hits a snag. He gets into a game he wasn't expecting and it cleans him. His brains are dead and can't help him. His dignity is no good, and his personality is off hobnobbing with the moon. Before he knows it, he is on the way to the street, and nobody cares."

"Yassuh," broke in Zach, unable to contain himself any longer, "das jus' zackly what happen to me. Pussonality done lef'. Big nigger wring his han's an' moan. Shoots 'em all around an' I wins eve'y time 'till day ain't but one dice lef'. I eats hit, an' hit warn't nothing but sugar. Sugar in a little square lump what dey marked de spots on. Never see no such sugar before. No mo' dices. Big man jump an' holler. Jus' den—"

There came a bellow from the regions above. It appeared that the President, who infested the second floor, was desirous of seeing a certain filling waste report. Judg-

ing from his tone and language, he seemed to consider it a matter of importance. Furthermore, he seemed to think he had waited for it plenty long enough, and did not feel any delicacy in saying so right out in plain language. The superintendent clutched his hair.

"Gosh," he exclaimed, "I got wound up and forgot that report. Zach, you're the cause of it. Now you run as fast as you can to the cloth room and get me a piece of wrapping paper. I've got to figure that thing out right now. And while you're there, step out to the gate and buy me a dime's worth of chewing tobacco. I'll pay you back Saturday. This filling waste amounts to about a million dollars a year, and I've got to figure what last week's was. Better take that cabbage out of your back pocket so you can travel faster. No use to haul a rabbit's supper around with you all the time. Leave it here until you come back."

"Cabbage?" The office boy took from his back pocket a paper sack stuffed full of green leaves. He up-ended it over the super's desk and dumped out an amazing wad of greenbacks. "Caint no rabbit eat dat. Sho wuz scared of cows. When de big man ack ugly an' reach around to his behind pocket, I grab disyuh an' run. High brown gal say easy like so de big man don't hear, 'Honey, don't you fergit me.' I says, 'No'm, thankee.' Out on de street somebody say, 'Country, ain't you feared de cows eat dat?' so I come on home. Ain't seed no cows, but I mought of."

Mr. Tell's eyes bulged out. "But Zach," he said, "that girl thought you were going to divide up with her for eating the lump sugar dice. Didn't she try to catch you?"

"Yassuh. Fin' me de back steps. She an' de big nigger rid up an' down de alligator three times whilst I wuz tromping down. Time I reached de street, dey done give up an' gone back. Alligators ain't no good, nohow."

The Small Textile Shop

BY R. A. SONIAMAN.

In this age of large corporations, the question often arises: is there still left a place in the textile sun for the small establishment?

And to this query there may be returned a qualified affirmative reply: if the small plant is properly financed, administered, managed, and sold as to product.

Every textile concern is, primarily, in business for profit, and the myriads of small shops that fill the cities, towns, and hamlets of Eastern United States tend to give abundant proof that the profits are there.

It has been the writer's peculiar privilege to have been given an insight into the workings of several of the smaller mills, and an endeavor will be made in these pages, to dissect the workings of one of the more successful places, in order to arrive at those factors which are essential to the continued prosperity and progressive growth of the establishment.

The concern in question is a small weave shed located in a New England textile center where plenty of skilled workers are available. Its product is a composite of draperies, linings, and lenos, in which the warp is basically cotton, and the weft, artificial silk. However, the product may be diversified still further by the manufacture of all silk dress goods, since the style of looms will easily take care of this class of work.

Indeed, the looms were purchased with the idea of diversification of product borne well in mind. A staple article with fads or fancies on the side. An ideal viewpoint, as the business of this firm has conclusively proved.

There is no designer, the various patterns being usually fully detailed with accompanying samples by the customers. Being in a textile center, it is an easy matter to get a specialist in cloth construction and analysis to help in a difficulty. The latter event is, however, a rarity; furthermore, the personnel of the shop are sufficiently versed in this work to take care of the ordinary run of cloths.

One salient advantage enjoyed by this firm and also by most going small establishments is that it is of the one-man type. Consequently, there is no loss to the firm through the iniquitous red-tapism which has evidently become an inherent yet hardly dispensable evil of the big concern.

The organization of the mill can be, perhaps, more easily understood from the diagram, Fig. 1. Likewise the duties of the various executives are lucidly depicted in Fig. 2.

It will be noted that the president's functions embrace the incoming material and the outgrowing product. In other words, he buys the necessary machinery, the warps and filling or material therefor, looks up the matter of keeping the establishment supplied with money, directs exclusively the sales end and determines largely the general policies of the establishment. Indeed, he is the dynamic force of the concern. To be successful, every small shop must have his prototype.

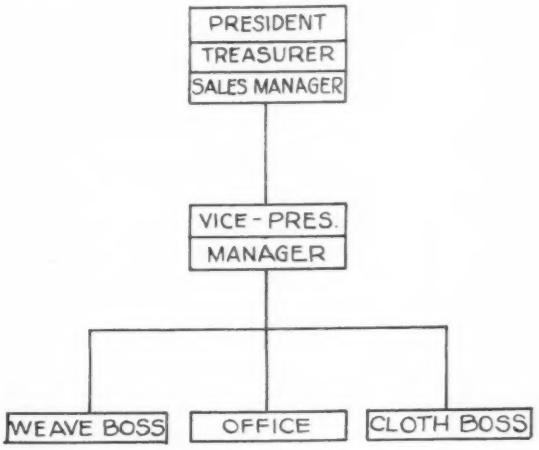


FIG. 1

The vice-president handles the production problem exclusively. His sole aim and purpose is to get out the biggest production of the best quality at the minimum of cost. As the president is supreme in the administrative branch, so is the vice-president paramount in his domain—manufacturing.

And while the president purchases those items which run into large sums of money in single units, the vice-president buys the supplies needed to keep the shop run-

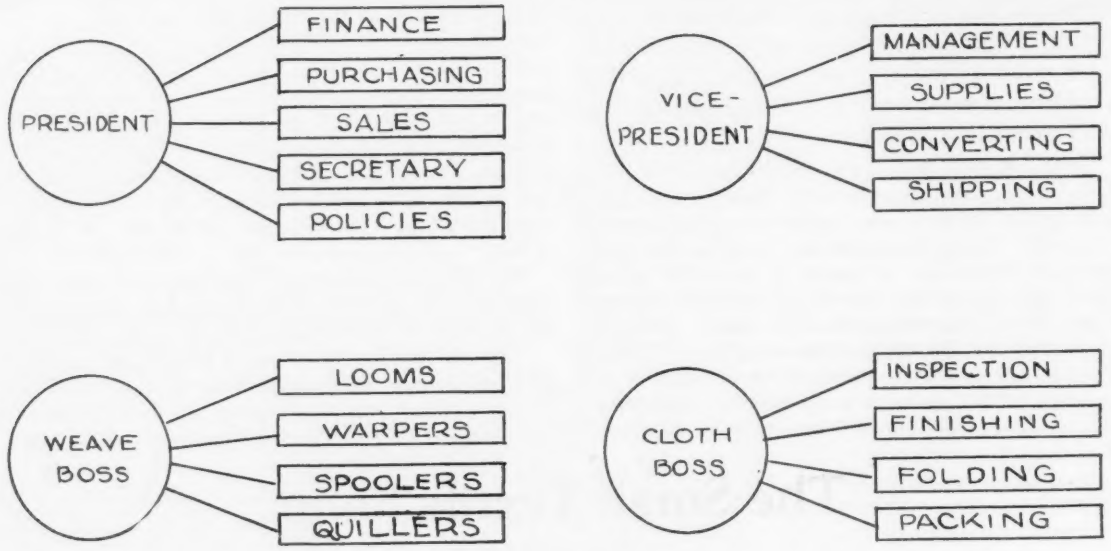


FIG 2

ning. It may be stated that both are very keen in the matter of purchasing, which fact contributes not a little to the success of the concern.

Another reason why this firm is fortunate in its purchasing is that of its policy of consulting with its technicians (weave boss and cloth room manager) as to the machinery or supplies bought. In fact, this scheme is superlative in the management of this plant, and from the writer's long years of contact with both large and small places, could be advantageously adopted by all mills, irrespective of size.

For, it is only a logical business proposition to tie up the men who handle the machines or supplies with the purchase of these items. There can then be no comeback by these men for any supposed shortcomings in machines or supplies. If these be faulty, the defects are usually brought to light at the time of purchase; therefore, everybody is aware of the fact and knows what the results will be. Passing the buck, as it is generally called, can find no place in this method of doing business.

Another outstanding feature in the management of this firm, is that there is no overlapping of duties on the part of the executives. Each has his own special line of endeavor to follow and each is expected to measure as close to maximum efficiency as it is humanly possible to get.

The boss weaver assumes entire responsibility of the looms, and in many cases makes repairs himself to keep the stoppages down to a minimum. He also supervises the warping, the quilling, and the skeinwinding sections. On the looms, he is provided with a fixer who also acts as general utility man in getting the warps in and out of the looms; whereas, on the other class of machines there is a handy man who serves as fixer, and who also supplies the workers with material and takes away the full spools, warps, and so on.

The cloth room boss takes care of the material after it leaves the looms. He looks after the inspecting, sending to the finisher, folding, packing, shipping, and all those other numerous details which attend this end of the business.

The operating executives are paid on a salary basis, and are of the type of conscientious men who would suffer almost any personal inconvenience rather than to ask off for part or the whole of a day. Should however, it be necessary at any time for one of the executives to be absent, one of the other men will attend to such duties as may be requisite until the absent member returns. There is thus never any lack of oversight in the manufacturing division, and consequently no break in that desirable discipline which while it is never obtrusive or obnoxious in this plant is still of that character which is so necessary for the attainment of the highest efficiency. This is another element in the success of this plant, and undoubtedly in all others.

Efficiency principles are made use of in a common sense way and without ostentation. It is a watchword, everlastingly reiterated, that quality must, above all things, be as nearly perfect as it is possible to get it.

There is a personal touch in the handling of the help which is almost an unknown quantity in the larger establishments, and while the hours worked have, as a rule, been well inside the legal limits, there is never any difficulty in having the whole place running to the full legal time. This flexibility of working hours is another advantage which the small plant can utilize to a greater extent than a large firm. It should be said here that the plant purchases its electrical power and also heat, and therefore when its doors are shut there is no necessity for any person remaining except when repairs are to be made. The watchman is really the only labor overhead when the place is closed, outside of the salaries of the operating executives, of course.

Owing to its proximity to the business section of the community, and with a street car line at its door, workers whom it is found cannot be fully employed for the day or half day, are immediately sent out after the starting time. There is thus no money being paid for idleness. Again,

should it be found that after workers have been laid off for a day or two that a change in conditions warrants the return of a few of the workers, the manager rounds up the required employees in his machine. Here again is that personal touch which goes such a long way toward keeping the labor turnover down to a minimum in this place.

Outside of this occasional transportation of workers there is no welfare work carried on in the plant. No restrictions, however, are placed on the actions of the employees in any of the activities which they may undertake provided that there is no interference with the quality or quantity of the product.

Throughout the place there is an entire absence of that loafing, soldiering or whatever that idleness of employees may be called, which seems an almost inherent trait in larger firms. Every person has his or her work laid out, and there are no extra or spare workers carried on the payroll. Should there be an absentee among the standing pay workers for a day or so, there is no trouble in distributing the work among the other workers on the same class of work. When a pieceworker is absent for a week or so, the place is usually filled for the time by some former worker. Weavers, it should be added, are all on piecework, except in those special cases where a first sample is made up or where a particularly bad warp or poor filling makes it impossible to work at anything like normal speed.

The layout of machinery is such that the manager can, at a glance, see what is going on in the whole department. Any delinquents among standing pay workers are thus generally quickly noted, even if the two men in charge of actual operations do not sense them. It is this keen oversight, the knowledge that a full day's work is expected, that keeps the workers in a proper state of activity. Weavers, of course, give little trouble in loafing because they are on piecework, and loafing means loss of money to them. Quality, however, must be watched and this place has a good system of handling this problem.

First, there is the continued daily scrutiny of the work on the looms by the boss weaver; then, the cuts are immediately inspected and picked as they come from the looms, and if faults are in evidence, the weavers are immediately taken to the inspecting table and shown the fault. In addition to this visual object lesson, they are told what actually takes place when a customer gets a bad bolt of cloth. Should a letter of complaint come back without the return of the cloth, a general talk on the subject is given the inspectors and weavers by the manager. Every one in the shop is thus kept minutely informed as to the quality of the material. Indeed it has become a sort of family affair in this particular respect.

It is the aim of the shop never to let a faulty piece of cloth go out, if possible, and it is to this fact that another pillar in the foundation of its success may be attributed. The workers themselves discuss the number of complaints that are received, and there is nothing more pleasing to them than when they are told that a certain period has gone by without a single complaint.

It is these homely little talks—really an essence of efficient employee handling—which serves to keep the workers at a pitch of efficiency which would seem impossible in a larger place. And this in spite of the fact that the mill does not pay any larger wages than its competitors or other textile shops in the locality.

Being small and easily supervised, an attempt at selective employing of workers is adopted in this place. The workers hired in are, again, generally, all more or less experienced and there is thus very little money spent in teaching beginners. This is another factor that gives the small plant an advantage over the larger one.

The question of machinery stoppages is handled in much the same manner, the boss weaver explaining the need of the production and detailing the possibility of cancellation by a customer if deliveries are not made on time. In the matter of keeping the machinery oiled and clean, and the floor swept, the operatives at the various machines are required to do this work.

Dissection of the elements making for the success of this firm may be briefly summarized as:

1. Centralization of control.
2. Dynamic personality of the head of the firm.
3. Interested and efficient manager.
4. Keen watching of purchases.
5. Consultation of operating executives when purchasing machinery or supplies.
6. Conscientious and capable operating executives.
7. No overlapping of duties of executives.
8. The fixation of responsibility.
9. No laxity in supervision of workers.
10. Common sense practicing of efficiency principles.
11. Personal touch in the handling of the help.
12. No idle workers at any time.
13. Rigid inspection of product.
14. Frank and frequent talks about product with workers.
15. Selective hiring.
16. Minimum expenditure for beginners.
17. Minimum overhead for unproductive labor.
18. Minimum stoppage of machinery.

A force of three clerks in the office handle the routine mail, attend to the making up of the pay roll, and the other usual office work.

To provide for present requirements and future developments, an addition is being added to the extensive facilities of the Cooper Hewitt Electric Company, Hoboken, N. J. The building will be 100x430 feet, six stories high. The first unit will be 100x200 feet, and will contain the glassware manufacturing and shipping departments, and the general offices. This will allow the laboratories of the company to be brought together in one place. The company produces industrial illumination, photographic and moving picture lighting equipment; also it is active in the various applications of quartz apparatus as a source of ultra-violet light. An added field is the manufacture of Kon-nec-tors or mercury switches. Lockwood, Green & Company are the engineers on the new building announced.

C.W. Allison, of the General Equipment Company, Charlotte, N. C., Carolina distributors for the Page Steel & Wire Company, has developed the "Conicola" post base trimmer, on which patent is pending, for application to the posts on Page fences and others set in concrete base. It is pointed out that with the customary setting of the post in the concrete, a depression in the concrete is left, in which water settles and gradually affects the life of the post. This device forms a conical base where the post is set into the concrete, giving durability and an attractive appearance. The post base trimmer is adjustable to fit any size post, and to give any desired slope to the top of the base. It can be used in forming these conical bases after the fence has been attached to the post, it is stated.

What the Southern Mills are Doing

The regular session of the Georgia Legislature in 1926 passed a thrift banking law known as the Credit Union Law, the aims of which were to enable any organization employing eight or more people to establish a thrift bank, operating within its own rights and governed and directed by the State banking laws.

The purpose of the law was two-fold, in that it was designed to encourage thrift and to enable those who need financial assistance to secure it at reasonable rates.

It may be said that it had another motive behind it of teaching dependent citizens how to conduct business in financial circles of the type in which they are able to operate. The first Credit Union to be established in a cotton mill in Georgia was recently set up at the Exposition Cotton Mills in Atlanta, Georgia.

Eight men agreed to sign for a charter, and establish the bank for the benefit of the employees. On the day the bank opened there were 140 depositors, subscribing for stock amounting to several thousands of dollars. The enthusiasm of the stock-holders has never wavered, and even in this period of curtailment and depression the depositors increase in numbers and the assets of the bank continue to climb.

The depositors have decided to make the bank a real thrift bank in that they will not borrow, but will have a committee to invest their holdings in good securities, as provided by the State banking laws.

J. C. Harris, a foreman in the spinning department of the mill, was elected president of the credit union. F. H. Netherland, a buyer, was elected vice-president. C. J. Turner, head bookkeeper, was elected secretary and treasurer, Miss Margaret West, cashier for the company, was elected assistant treasurer and Miss Florye Reid, in the time-keeping department, was elected assistant secretary.

The credit committee selected included J. A. Winterbottom, a shipping clerk; R. W. Smith, a loom fixer; Henry Kemp, a second-hand, cloth room; Will Kennington, a machinist, and W. C. Hames, an employee in the roller shop. The supervisory committee included W. H. Hale, an inspector; L. B. Adams, assistant cotton man for the mill, and J. P. Netherland. And the board of directors was composed of J. A. Towns, a machinist; R. L. Freeman, an employee in the carding department; C. L. Clerner, an employee in the weaving department; J. C. Harris; F. H. Netherland; C. J. Turner, and P. E. Glenn, secretary and treasurer of the Exposition Mills.

The names are mentioned to show how completely the organization has been one of, by and for the employees of the mill. Every department of the mill has a representative either on the board of directors or the two most important committees. And it is a significant fact that only one official of the mill is also an official of the credit union.

The one official is P. E. Glenn—and that is another significant fact. For years Mr. Glenn has been working to improve the condition of employees at the Exposition Mills, and it was largely through his interest and efforts that the credit union was established. While he did not wish to hold any office in the credit union, the employees insisted upon his becoming at least a member of the board of directors.

The feature of the credit union which will be stressed most largely at Exposition Mills will be the savings department. Employees will be encouraged to save a definite amount each week, no matter how small, on the theory that it is not the amount saved but the habit of saving formed that counts.

In addition to the credit union, the Exposition Mills employees have a mutual benefit organization that has proven an outstanding success and a cooperative store that has saved many dollars for its stockholders.

There are 750 employees at Exposition Mills, and it is expected that between 200 and 300 of these will be enrolled in the credit union as soon as textile conditions improve.

* * *

The addition to the North Carolina State College Textile building is rapidly nearing completion and new machinery is now being received. The old picking machinery has been discarded and replaced by the following equipment: A bale breaker, vertical opener and finisher picker of Saco-Lowell make; Reeves variable speed drive; Whitin C. O. B. machine and breaker picker.

The building has been so planned that laps from the finisher picker can be taken either to the carding and spinning department or to the experimental room which will be operated as a separate unit.

The carding and spinning department has a full complement of machinery for making carded and combed yarns, but in order to carry out and make tests which have been planned, the following new equipment is now being added to the experimental room:

One card from Howard & Bullough; one slubber, one intermediate from Saco-Lowell Shops; one intermediate, one fine frame, one drawing frame from Whitin Machine Works; two spinning frames from Fales & Jenks, one of which is equipped with the Casablancas system; one spinning frame from Saco-Lowell Shops with one side of frame having the Saco-Lowell four-roll system, the other side being equipped with the Roth Saco-Lowell long draft system. One Fales & Jenks fancy twister.

It has been especially planned to operate the experimental room as a separate unit for the purpose of cooperating with the mills as well as to give instruction to the students in the Textile School.

The various machines in the Textile School are being rearranged so as to illustrate the different methods of driving cotton mill machinery.

* * *

Group insurance in force on employees of the Union Bleachery, Greenville, S. C., has been increased from $322,000 to more than $550,000.

Under the original plan, adopted in May, 1916, the bleachery workers received free protection, including liberal funeral benefits.

The Union Bleachery recently rearranged its insurance plan in order to provide additional protection of $1,000 for each employee in the principal classification covered. Two hundred and thirty-four of these accepted their employer's offer.

While the employer bore the entire cost of the insurance under the original plan, the one recently established pro-

MATHIESON Chemicals

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THE protection of insurance is readily available on the textile mill, its equipment and its employees, but what about insurance on the uniform quality of the finished goods it produces? Protection of this sort can come only from utmost care and skill coupled with the best raw materials obtainable.

Among "Eagle Thistle" products, the dyer, bleacher, finisher or mercerizer can select a group of dependable chemicals which may well form the basis of his formulas. Year in and year out, he will find satisfaction in the use of Mathieson Liquid Chlorine or Bleaching Powder and Mathieson Caustic Soda (Solid, Flake, Ground or Liquid), Soda Ash, Bicarbonate of Soda, Modified Virginia Soda and Aqua Ammonia.

The best insurance against textile processing troubles is the consistent use of both Mathieson Alkali and Mathieson Bleach.

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Soda Ash - Bleaching Powder
Modified Virginia Soda
Aqua Ammonia

Deal Direct with the Manufacturer

vides for the payment of premiums by the employees.

Besides the actual insurance benefits, certain service advantages also are included in the general plan. Among these are a free visiting nurse service and the periodical distribution of pamphlets on health subjects and sanitation.

* * *

Enoree Mills, Inc., a new company of which R. Z. Cates is president and M. L. Cates vice-president, has taken over the Enoree (S. C.) Mills, which will be operated under the new charter. No plans for additions were announced.

The new addition of the Unity Spinning Mills, LaGrange, Ga., will be 132x217 feet, and will house 10,000 spindles to manufacture coarse yarn. Construction work is under way.

Johnson & Johnson, of New Brunswick, N. J., it is reported, is considering the establishment of a plant at Rome, Ga., for the manufacture of medical gauze.

The new waterproofing plant of the Lanett Bleachery & Dye Works, West Point, Ga., will be in operation soon, it is announced. The new equipment has a capacity of 250,000 yards per week. The building is of brick and concrete construction, 100x60 feet, two stories high. The waterproofing equipment will be located on the lower floor, and the upper floor will contain the napping equipment.

The capacity of the Appleton Manufacturing Co., Anderson, S. C., successor to the Brogon Mills, has been practically doubled, and full operation will begin shortly.

Capacity production has been reached at the recently completed plant of the Central Franklin Process Company, Chattanooga, Tenn. The new plant includes three buildings, and has a production capacity of approximately 40,000 pounds per week.

Maginnis Cotton Mills, New Orleans, La., have placed an order for 200 40-inch Model E. Draper looms, giving a total of 1,200 looms. No additional spinning machinery is is required, it is announced, the increased weaving capacity being made necessary by an improvement in efficiency in the plant.

Bremen Looms, Bremen, Ga., which have been idle for some time, have resumed operations with J. H. Smith as superintendent.

Burlington Mills, Inc., Burlington, N. C., have added fifty looms to their equipment, it is reported.

Operations have begun in the new plant of the Vann-Moore Mills Co., Franklinton, N. C., which has an equipment of 140 looms manufacturing towels.

The New England Mill Situation

While business is beginning to improve moderately and steadily in New England textile mills there is still a notable lack of investment interest manifested. Shares are selling far under par in mills that are capitalized under $10 a spindle in many cases, and dividends have been declining steadily this year. An analysis of the earning capacity of many of the plants, even in the face of the numerous adverse factors growing out of restrictive legislation, overtaxation in municipalities, and inability to reduce labor costs by lower wage scales, shows that pessimism has gone beyond warranted stages.

There are signs of improvement but they have not become general as yet and wherever shares are forced for sale, the seller must be prepared to accept ridiculously low figures for his holdings. In many well posted circles the belief obtains that New England has seen its worst days in the textile field, but this is not the popular attitude for the time being. In the centers that have suffered most, notably at Fall River, the gain in confidence has been exceedingly slow.

One plant, the Pocasset, located in the center of the city on the stream from which the city obtains its name, was sold to new stock purchasers at $25 a share. The plant could be liquidated as real estate for more than twice this amount. New owners are now engaged in running out the cotton in the machinery and it is proposed to sell the properties for various purposes other than cotton manufacturing. A part has already been sold for a bus station for the cars of the N. Y., N. H. & H. R. R., which is operating a system of busses to neighboring cities. The water rights are stated to be desired by the American Printing Company, and are rated to be worth a third of the purchase price of the property. The machinery, if sold on the basis of $2 a spindle—and it is in good condition—should bring $150,000.

Another plant, the Arkwright, of about 60,000 spindles, can be bought for less than $50 a spindle, although it is in operation and made some money last quarter. A plant of 115,000 spindles, having no surplus of debt above quick assets is quoted at under $50 a share. Still another, having three large mills available for plain or fancy work, is selling at under $50, while its quick assets are reported to be worth $25. There are several instances of plants lying idle, and one is in the hands of creditors, and another in bankruptcy. Very recently a plant in Taunton, Mass., was bought by another mill in New Bedford, and is now being operated at a profit. The purchase price was stated to be less than a fifth of its probable cost today. Another, in Lowell, widely known as being in fair condition mechanically, was turned over to its creditors for much less than half its capital.

These are sample instances of mills sold for a song because of an utter lack of investment confidence in properties that are about as well equipped as the average mill, and could be modernized for less than $8 a spindle, even to the extent of equipping them to make near the finest and fanciest products.

No such demoralization of mill confidence has been seen in New England and the only parallel to it is found in the conditions in Lancashire, where more than a third of the mills have not run profitably since the war ended. Even in the hard dragging days that followed the panics of 1873 and 1893, when many plants were closed for months at a time, there was no such lack of stockholding interest as that seen in the past six months.

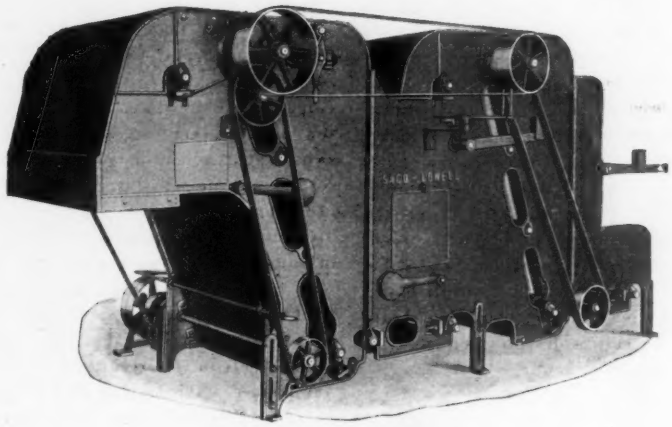
Yet in the face of this condition there are New England mills that are being run at a profit and have no threatening competition. There are some being run day and night and many have different departments employed overtime.

A short time ago the mills of the B. B. & R. Knight Company were sold for less than $3,000,000 at bankruptcy sale by order of the courts. It will be recalled that these same plants were purchased a few years ago at $20,000,000 and a first mortgage placed on them for $7,500,000, or on a basis of $15 a spindle. This did not seem large at that time as mills then cost $60 a spindle.

That the worst has actually been passed is shown in

SACO-LOWELL

LARGEST MANUFACTURERS OF TEXTILE MACHINERY IN AMERICA



No. 6 Tandem Feeder

THE SOONER THE BETTER

to get your cotton down to a fibre basis. Tandem Feeders, installed between the Bale Breaker and the Vertical Openers, will reduce to small tufts any lumps that may come through and render the work of the Vertical Opener more efficient.

Saco-Lowell Shops

Newton Upper Falls, Mass.

SOUTHERN OFFICES

Charlotte, N. C. **Greenville, S. C.** **Atlanta, Ga.**

FOREIGN SALES DEPT. Newton Upper Falls, Massachusetts, U. S. A.

the confidence with which leading manufacturers have begun to take up the work of marketing under new conditions, and re-equipping plants for the production of different styles of goods. The experience embodied in the old saying of "giving a dog a bad name" has undoubtedly had much to do with bringing New England mills to their low estate. Mills as industrial necessities in their communities were discredited by legislatures, newspapers, and by popular outcry. The assaults made upon New England by outsiders were allowed to go unheeded, and once the slide in mill share values really began, there seemed to be no one desirous of stemming them.

The confidence in the future now found in many places is due largely to actual experience in handling problems of merchandising and re-equipment. Instances are not wanting to show that where good merchandising plans have been adopted, mills have been doing fairly well. The American Printing Company at Fall River has been making some money and running in full. The character of its product has been completely changed from the old staple calicoes to the finest qualities of combed yarn fast color printed cottons. Part of the cotton mill plant has been moved and re-established at Kingsport, Tenn., while the balance of it has been kept running close to a profit basis, since cotton declined. If cotton continues to remain cheap so that the finished products gain wider use there is little reason to look for idleness in this plant.

In the past six months, the Pacific mills of Lawrence and South Carolina are reported to have sold the largest yardage ever handled. If profits have been small, it is evident that competition is no longer feared as it was. The mills will enter upon the work of selling their own goods in cooperation with Lawrence & Co., of New York in September. The big Amoskeag Company has been operating about 60 percent of its plant, and because of lower costs, it bids fair to come close to showing an operating profit, while fighting all the adverse factors of high wages, high taxes, and a constant pressure to reduce working hours. The Pepperell mills of Biddeford, Me. has changed its selling policies greatly and is securing more business steadily. It recently sold the largest bill of drills for shipment to India that has been made since the war began.

There are many other instances of New England plants that have overcome all the handicaps of general and specific restrictions compared with those hedging about competitors elsewhere and have begun to get back into better working order.

Rayon has entered to some extent into the plans of those who are hoping to see the textile industry of New England restored. This year's experience has not been happy, owing to the overproduction of low qualities elsewhere and the injury done to the fiber in consuming channels. But with rayon on a much lower price basis, lower even than it was before the war, a field is opening up for its use in cotton cloths that did not exist this year nor last. The larger use of fast colors in cotton goods together with better styling will do much to place the industry of New England on a sounder basis. Cotton goods as a whole have been greatly injured in sale by the use of fugitive colors at a time when fast colors are procurable and may be had at reasonable prices. Greater skill and research work are developing at finishing factories and they are being used more largely by New England manufacturers of fine qualities of cotton goods.

New England manufacturers have been leaders in the movement for the establishment of a Cotton Textile Institute, organized this week in New York, and they have also done much to spur up New York merchants in the undertaking of plans for the better merchandising of cotton fabrics as a whole. The leaders in this movement have not always been on committees, nevertheless, their plans are those that are being worked out and will ultimately assist all the trade. New England is not partial to open price associations as those organizations have operated in other lines, but they are quite ready after their own experience with them, to adopt many of the methods that have made those bodies popular.

They believe that much good will come from accurate statistics on stocks, production, and sales, but they are more firmly convinced that greater good will come from a reorganization of the methods of price reporting in the New York markets. No other industry in the world has been treated as cotton goods have in the matter of disclosing intimate mill information to buyers. No other industry has demanded it, not even in the textile field. The frequent quotation of sales of goods at concessions of small amounts in a declining market, with all the details given of every construction, width, and count, could not but fail to break down the primary producers' right to a fair market, yet manufacturers have not only tolerated and encouraged bad methods in this regard, but have even demanded their continuance without being able to see the ultimate drift.

The cotton mill machinery plants are still very dull, most of the business being on replacements. The finishing plants have had the poorest summer in a long time. Competition has been so hard that finishing has become unprofitable for many job plants wherever staple goods are involved. Some plants have done well on rayons, while others have not. At the moment it looks as if the industry has again started toward better things, sales having increased and production stopped declining.

Cotton Comment

BY H. AND B. BEER

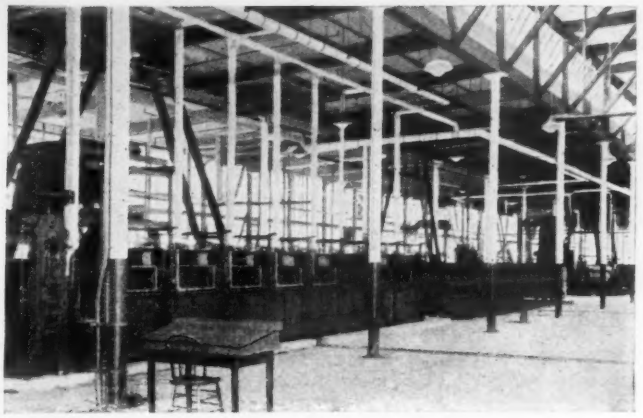
New Orleans, July 10th, 1926.

Returns to the government, as of June 26th, denoted a larger acreage planted to cotton than generally expected, and a probable yield larger than generally looked for. This year's acreage is estimated at 48,898,000 acres, or 1 per cent larger than last year's previous record acreage of 48,090,000, and the indicated yield was 15,635,000 bales.

The government crop report had a temporarily depressing effect on values, but as the market was short, and as there was much uncertainty as to climatic and crop developments during the critical months of July and August, there was more disposition to cover than to follow the decline further.

Recent developments have been favorable to the constructive side of the market. Unfavorable showery weather prevailed during the first ten days of July, causing insects to increase, especially as regards the Mexican cotton flea, infestation of which is reported rather general from Texas to Georgia, resulting, according to reports, in much damage to the growing crop.

An extract from the bulletin issued by the Tallulah, La., government laboratory, July 4th, says: "During the past



Gregg Dyeing Plant, Graniteville, S. C., a modern textile plant equipped with Truscon Steel Windows. J. E. Sirrine & Co., Greenville, S. C., Architects and engineers.

Light and Air

Truscon offers the most complete line of industrial Steel Windows and Mechanical Operators for textile plant daylighting and ventilation. Furthermore, Truscon backs up the product with an engineering service that insures satisfaction. When you build or add to your present plant incorporate Truscon Windows and Mechanical Operators for efficiency and economy.

Catalogs Free on Request

TRUSCON STEEL COMPANY, Youngstown, Ohio

Warehouses and Offices in Principal Cities.

In the design of your textile mill you can avail yourself of Truscon engineering counsel and in the construction Truscon National Erection Service relieves you of all responsibility.

TRUSCON
NATIONAL
ERECTION SERVICE
Assures Accuracy Speed & Economy

TRUSCON STANDARD STEEL WINDOWS AND MECHANICAL OPERATORS

few weeks there has been a totally unexpected unprecedented spread of damage to the cotton crop caused by what is known as the cotton hopper or the cotton flea. This has aroused widespread interest and apprehension, and owing to lack of information in meeting with the problem, it has been necessary to carry on emergency research observations."

Meanwhile several state entomologists have issued alarming statements regarding damage being done the growing cotton crop by the flea, and there has been almost an endless stream of private reports from the interior, claiming the plant to be fruiting poorly because of the ravages by the flea and other insects.

Accordingly the trade became very uneasy as to the sudden unfavorable reports concerning the progress of the growing crop, which was reflected in short covering and trade and speculative buying, the market in consequence, advancing about 130 points or $6.50 per bale from the recent low prices following the release of the July 2nd government crop report.

Such a widespread infestation of the flea is something new in the cotton region. In the past certain localities of the belt, especially south Texas, have been troubled by the pest, which, according to advices, is difficult to control.

There is the possibility that the flea invasion may be of short duration, and in that case the plant would begin to fruit again, making possible a large crop with average weather conditions in the future.

The more conservative of opinions are that the alarming requorts are somewhat exaggerated, and conservative advices, covering the belt, are to effect that the condition of the plant is generally good, healthy and growing rapidly, except that the condition is poor in parts of northern Georgia and northern Alabama, and that cotton is blooming freely over a wide portion of the belt, that fruiting is beginning in many sections, but generally fruiting is not as satisfactory as last year on account of the cotton flea. There are many reports of boll weevil, but weevil damage is as yet light.

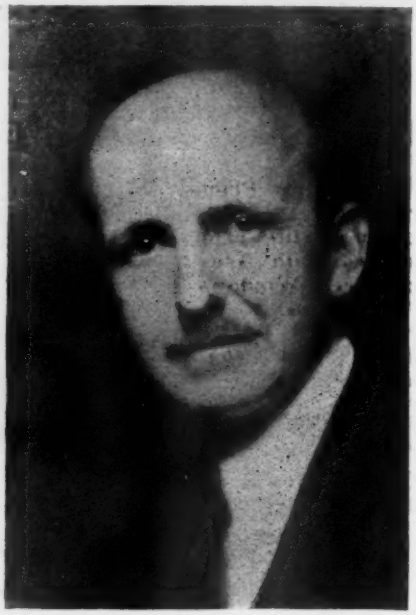
Present prospects are for a smaller crop than last year east of the Mississippi River, but in that section the acreage is larger than last year, ranging by states from 1 to 10 per cent larger than one year ago, and while there is a slight decrease in the acreage west of the river, except in Louisiana, Arkansas and Arizona where there is a small increase, there is a better season in the ground, promising a larger yield than last year. It is probable, therefore, with average weather in the future, a good crop will yet be made, the damage by insects nothwithstanding.

To Develop Markets for Artificial Silk

Reaching the heights of endeavor in one industry, Edward Volney Peters, newly elected vice-president and director of the Tubize Artificial Silk Company of America, is beginning anew in another. For 20 years, as an executive of the New Jersey Zinc Company, his medium has been acids, metals, pigments, chemicals and paints, which he now has abandoned for the newer and possibly greater prospects of artificial silk.

But Mr. Peters does not consider his new status as revolutionary as it seems. He admits that where he has always talked in gallons, pounds and tons before he will now have to speak in yards and pounds, but he explains his business success is founded on the organization and reorganization of markets and he believes the marketing of textiles is not greatly dissimilar from the dissemination of paints, oils and varnishes. That is to be Mr. Peters' function with the Tubize Artificial Silk Company, the creation of markets and of sales organizations to develop them. To this comparatively new and growing branch of the textile industry he brings 20 years' experience of buying and selling in a trade where these functions have been developed almost to an art.

It is unusual and distinctive of Mr. Peters that as a seller he is primarily a buyer and has always been closely identified with buyers. To illustrate, he was one of the 15 founders of the National Association of Purchasing Agents, and subsequently, when general sales manager of the New Jersey Zinc Company, he held various offices, including the presidency, of the National Paint, Oil & Varnish Association. In this position he found himself to be spokesman of his own customers.



Edward Volney Peters, Elected Vice-President of Tubize Artificial Silk Company of America

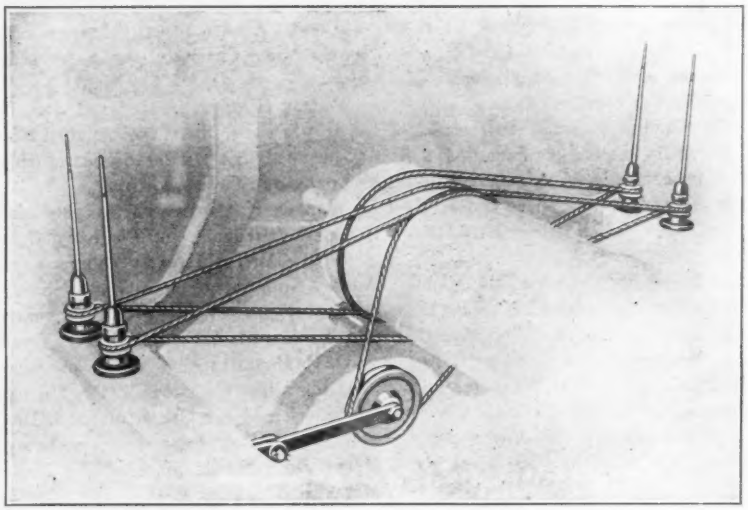
He entered the business world as a purchasing agent for the Manhattan Railway Co. in 1901, at the time the "L" was being converted from steam to electric power and was in charge of the purchasing of all the electrical equipment adopted by the railway at that time. His record in this position brought him an advance in 1903 as purchasing agent of J. G. White & Co., and in 1906 he joined the New Jersey Zinc Company as assistant purchasing agent. Successively he held the positions of general purchasing agent and assistant general sales manager of this concern, and in 1919 he was appointed general sales manager.

Mr. Peters was born in St. Louis, Mo., June 16, 1881, and attended school in Chicago and New York. He is married and has a son and daughter. His residence is at Flushing, L. I. He is a member of the Pomonok Country Club, Blue Ridge Country Club, Drug & Chemical Club and the Unqua-Corinthian Yacht Club.

H. & B. AMERICAN MACHINE CO.

PAWTUCKET, R. I.

COTTON MACHINERY



PATENT TENSION DEVICE FOR BAND DRIVEN SPINNING FRAMES AND TWISTERS

This device is a four spindle drive which has been developed, thoroughly tested under actual working conditions, and is now in use in a number of mills.

All the fine qualities of tape drive are embodied in this device with the additional advantage of lower cost of upkeep.

Uniform speeds are obtained assuring more even twist, and slippage is reduced to a minimum, due to the large contact area of the band with the cylinder and spindle whorl; this being double that of tape driven spindles.

Sole Makers and Licensees

H. & B. AMERICAN MACHINE CO.

Pawtucket, R. I.

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

MARSHALL O. STONE, for several years assistant superintendent of the Pacolet Manufacturing Co., New Holland, Ga., has become general manager of the Arkwright (S. C.) Mills and the Enoree (S. C.) Mills. The latter plant was recently sold by the Graham interests of Greenville to R. Z. Cates and M. L. Cates and others of Spartanburg. Mr. Stone is the son of M. G. Stone, the dean of mill men of the South, as he has been called, and one of the outstanding figures in southern cotton manufacturing.

W. H. GIBSON, JR., recently elected president of the Southern Textile Association, has resigned as manager and superintendent of the Cascade Mills, Inc., Mooresville, N. C., to accept a similar position with the Aileen Mills, Biscoe, N. C.

LEWIS H. BECK, superintendent of the Griffin Manufacturing Company, Griffin, Ga., has resigned to accept the position of president and general manager of the Montala Manufacturing Company, Montgomery, Ala., and the Autauga Cotton Mills, Prattville, Ala., which were recently acquired by Hesslein & Company, of New York City.

HAL RIVIERE, for several years superintendent of the Eagle & Phenix Mills, Columbus, Ga., has succeeded Mr. Beck as superintendent of the Griffin (Ga.) Manufacturing Company.

DOUGLAS TOMPKINS, superintendent of the Hamilton-Carhartt Mills, at Rock Hill, S. C., was married on June 19th to Miss Polly Rowell, of Needham, Mass., the ceremony being performed at Needham.

EUGENE ATWOOD, advisory director and founder of the Atwood Machine Company, Stonington, Conn., died on June 3rd, following a short illness.

S. P. PARKER is superintendent of the new Vann-Moore Mills Co., Franklinton, N. C.

HOWARD CALLAHAN, formerly with the Atlanta office of the Chicago Belting Company, is now connected wtih the new Greenville (S. C.) office of the American Casablancas Corporation.

G. W. DOBBINS, of Raleigh, N. C., is general manager of the Bremen Looms, Inc., Bremen, Ga., which have resumed operations. J. H. Smith, formerly of the Pacolet Manufacturing Company, New Holland, Ga., is the superintendent.

W. S. PORTER has become overseer of weaving, slashing and tying-in at the Lincoln Cotton Mills, Evansville, Ind. Mr. Porter was formerly overseer of weaving at the Borden Mills, Inc., Kingsport, Tenn.

L. L. MAXEY has resigned his position as night overseer of twisting at the Manville-Jenckes Company, Gastonia, N. C., and has accepted a position as general overseer of twisting at Mill No. 6, Marlboro Mills, McColl, S. C.

A. H. WALKER has transferred from overseer of weaving at the Aragon-Baldwin Mills, Rock Hill, S. C., to a similar position at the Glenn-Lowry plant of the same company at Whitmire, S. C.

A. E. MCKAY recently resigned as superintendent of the Brown Manufacturing Company, at Concord, N. C.

A. R. MEEKS recently resigned as superintendent of the Lawrenceville Mills of the Barrow County Cotton Mills, Lawrenceville, Ga.

ALFRED JEPSON recently became superintendent of the Savona Mills, Charlotte, N. C., succeeding Ira Hayes, resigned.

WILLIS HUNTER, treasurer of Saco-Lowell Shops, Newton Upper Falls, Mass., has resigned this position to accept a place with the Hunter Manufacturing & Commission Company of New York City.

WARREN K. CADMUS has resigned his position in the office at the Gregg Dyeing Company, Graniteville, S. C.

L. B. DANIEL recently became superintendent of the Audrey Spinning Company, Weldon, N. C.

S. C. SIMMONS has been made general manager of the Opelika Manufacturing Company, Opelika, Ala.

O. P. MOREHEAD has become overseer of carding at the Cliffside Mills, Cliffside, N. C. He formerly held a similar position at the Henrietta Mills, Henrietta, N. C.

C. E. MCABEE recently was made overseer of spinning at the High Shoals plant of the Manville-Jenckes Company, High Shoals, N. C.

GEORGE W. BECKNELL has become superintendent of the Marsh Cotton Mills, Salisbury, N. C.

J. S. LINDER has resigned his position with the Lullwater Manufacturing Company, East Point, Ga., and has become overseer of weaving at the Indiana Cotton Mills, Cannellton, Indiana.

W. B. HOLT has succeeded Henry D. Martin as superintendent of the Williamson Mills, Charleston, S. C. He was formerly overseer of weaving at the Lowe Manufacturing Company, Hunsville, Ala.

E. R. ELLENBURG has been made overseer of weaving at the Rhodes-Rhyne Mills, Lincolnton, N. C.

RALPH CLARK has been promoted to the assistant superintendency of the Knoxville Cotton Mills, Knoxville, Tenn.

A. C. SUMMERVILLE, owner of the Magnolia Mills, Charlotte, N. C., died on July 7th. He is survived by four sons, two daughters, and one brother and one sister.

National Solantine Blue FF and National Erie Black BF are two recent additions to the line of the National Aniline & Chemical Co., Inc., 40 Rector St., New York City. The former may be used in any type of dyeing machine, due, it is stated, to excellent solubility and level dyeing properties and resistance to the actions of metals. The company states that while particularly recommended for cotton and artificial silk, it will find use in dyeing mixed fabrics in which the animal fibers are to be left clear; also that perfect whites are obtained due to complete dischargeability with hydrosulphite.

The new direct black, it is stated, yields shades notably fast to washing by after-treatment with formaldehyde. It is somewhat brighter than Erie Black GXOO.

DU PONT DYESTUFFS

PONSOL PINK B DOUBLE PASTE

A Vat Pink of Exceptional Fastness Properties

TO a superlative degree, this dyestuff is resistant to the effects of light, chlorine, washing and all the tests usually applied to this class of color.

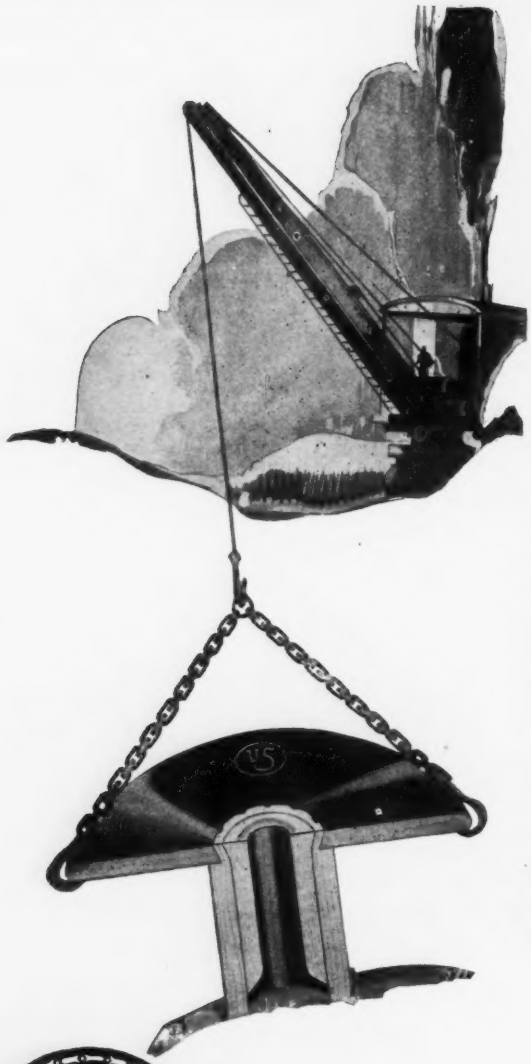
It can be used on all types of circulating machines, and is highly satisfactory for dyeing cotton in all stages of manufacture.

Due to its low dyeing temperature and the reduced quantity of alkali necessary, it is also especially suitable for dyeing pure silk and rayon.

E. I. DU PONT DE NEMOURS & CO., INC.

Dyestuffs Department

WILMINGTON, DELAWARE



Half-a-Ton Pull

won't budge these HEADS

WHAT is a slam on the floor compared to a strain like this? Yet every U S Fibre Head Warper Spool will stand more than one half-ton pulling weight.

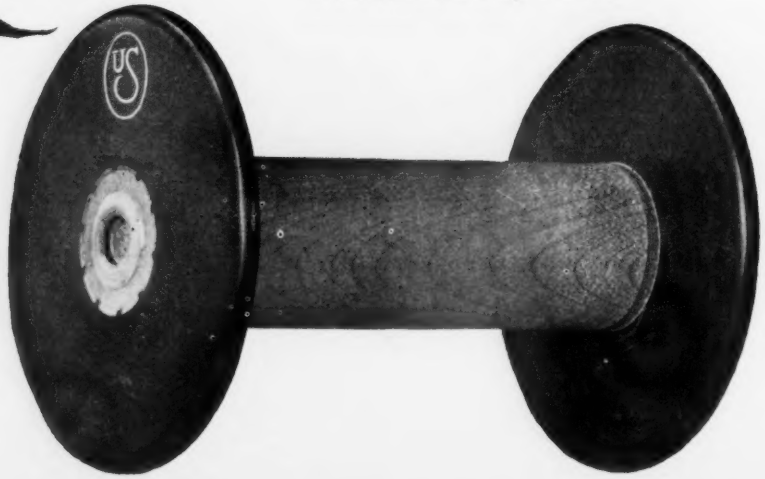
The secret of their tremendous holding power is in the method used to clamp the head to the barrel. A tenon on the barrel extends through the head. A tapered Dogwood Bushing is driven into the hollow end, forcing the tenon outward and locking into the projections on the fibre head, (a special feature of the U S Spool). The wedge is bone-dry when pressed in, and soon absorbs moisture to the normal content of the wood and expands, making the joint between head and barrel more solid than one-piece construction.

This construction has been a feature of U S Fibre Head Spools for over 10 years.

If you are not already using U S Fibre Head Spools, write our Providence Office or nearest representative for a sample. See its advantages for yourself.

U S Bobbin & Shuttle Co.

Providence, R. I.

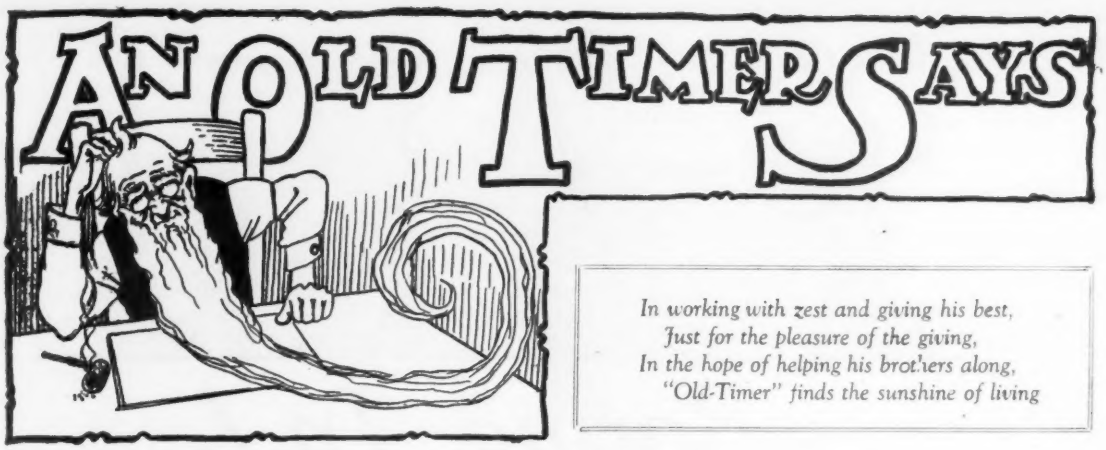


Representatives:

D. C. RAGAN
High Point, N. C.

M. OUSLEY
12 E. Stone Ave.
Greenville, S. C.

DAN O'HARA
248 Chestnut St.
Philadelphia, Pa.



In working with zest and giving his best,
Just for the pleasure of the giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

"You must have a new oil or something for that old engine, Jim."

"Why, Old Timer."

"It looks like to me that those looms are running much faster than they were last time I was here."

"Sure they are, but it is not the oil on the engine, Old Timer. I've heard so much about this high speed business that I thought I would try it out."

"How long have you had them speeded up, Jim?"

"Oh, about two weeks."

"Well, we will not talk about that now, but I want you to give me a full report on it next time I come over. Meantime Jim, be sure to keep a record of your supplies, because I will want to know how it compares with your past records.

"There is no doubt in my mind but what we must go to higher loom speeds and spindle speeds too, but there is a question whether we have the machines that will stand it as they are at present constructed. Write me, Jim, telling me what you think of it six months from now."

(Cloth room man comes up to speak to Jim.)

"Our weights have gone so light on blank style of goods that I can't bale the goods. What am I going to do about it?"

"I'll look into that right away."

(Cloth room man is gone.)

"I know what is the trouble, Old Timer, we are a little short on that 38s filling and those darn weavers are putting in 40s filling to keep their looms going."

"Jim, do you mark the number of filling on the filling boxes as they come from the spinning?"

"Sure I do; why?"

"Well the best system I have found, Jim, is to put tags on each filling box and put the style of goods on the tag, but not the number of filling."

"What's your argument, Old Timer? I don't see any advantage in that."

"Well Jim, I hardly know how to explain it to you, but I do know that you will have much less filling used in styles of goods where it should not go. When section men, weavers and all others don't know the number of filling in a box they simply are a little more afraid to use it on the wrong style of goods. Many of them say, 'one or two numbers will not make much difference anyway and I've got to keep my looms going.' It is also much more simple for the filling haulers to lay up filling marked 80 x 80 into loom boxes that are marked 80 x 80 instead of having to know that number 39s filling (or the number you use) goes into 80 x 80 and 41s filling goes into some other style.

"Also, if you will mark the style of goods on your twine harnesses it will save a fixer from sometimes fitting on the wrong warp. It will also be easier for beam rollers, fixers, draw in hands, or tie-in machine men to find the pattern they want.

"What are you having to pay for picker sticks Jim?"

"I think I have got one on you there, Old Timer. A man came along a few months ago who wanted to sell picker sticks. Well, I have been trying to save on supplies too, Old Timer, so I told him that if he would make us the right price I would give him an order for a year's supply. I finally got him down four cents per stick. Now come on and tell me the truth, what are you paying?"

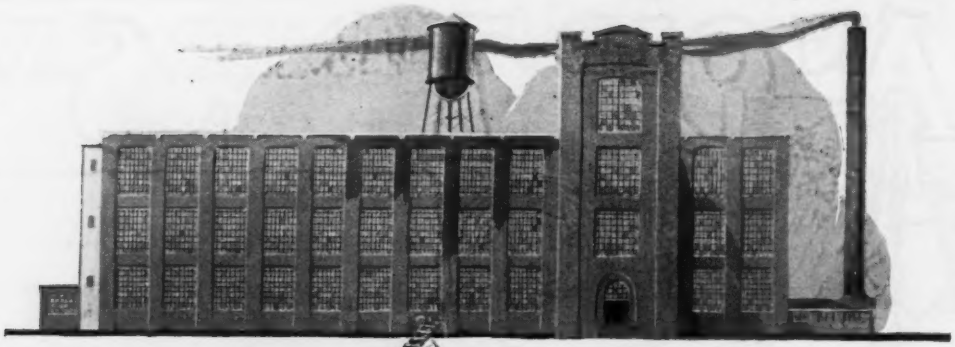
"Yes, Jim, I'll tell you the truth because I happen to know we are buying sticks from the same man and we are paying him six cents per stick more than you were paying before you got him down four cents, therefore our sticks are costing us just ten cents each more than yours."

"Great Scott, Old Timer, just a few minutes ago you were talking about saving the nickels; now you have flopped over the other way. How in the Dickens do you expect a man to know how to take you. Have you actually told the truth about the picker sticks, or are you trying to pull one of your smart Alec tricks on me like that doffing with one doffer business?"

"No, Jim, I am in dead earnest. In fact I was very much impressed with the new picker sticks I saw in the trash boxes at your fixers' work benches as we went through the room and that was what prompted the question. Then when you told me where you were getting the sticks and about getting him down four cents on the price, the whole thing came to me and I remembered that man telling me about getting a year's contract from you. He is evidently shipping you the sticks he culls out of orders he makes up for us."

"The dirty rascal! Just wait until he comes around here again—"

"Wait a minute, Jim! That salesman is not to blame at all, he is probably giving a very good value for your money. You have no one to blame but yourself, and if you will keep your shirt on and listen, I think I can show you where you are losing about 50 cents per stick instead of saving four cents as you thought you were. It's the



Boring In!

Like a phantom auger, Dry Rot bores into unprotected cotton mill floors.

It is the mill owner's worst enemy. Relentlessly, night and day, it never ceases its attack. Sooner or later it causes sagging, rotting floors that must be replaced at great expense and the loss of valuable time.

There is just one way to beat Fungi or Dry Rot. Install a sub-flooring that is poison to it—a sub-flooring that is thoroughly penetrated with creosote oil.

Creo-pine Sub-flooring

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little things Jim—the *little* things—"

"*Little* things Hell!—"

"Hold on now and let me explain.

"When a weak picker stick begins to give trouble in a loom, the fixer is likely to have two or three flags before he will decide to take it out, especially if he has two or three other flags up at the same time, or maybe a warp out, or maybe it is nearly stopping time; at any rate he is going to make it run as long as he can because he just naturally don't like to put in picker sticks anyway.

"Well, it will take him at least 30 minutes to put that stick in and get his loom to running in good shape, even if he keeps a new stick fixed up at his work bench with the parallel foot, heel strap, etc., on it ready to put in (which most of the fixers will not do unless you make them).

"You are paying fixers 40 cents per hour, so your stick will cost you 20 cents in labor to put it in even if you do not allow anything for the loss in production for that loom standing, and then if he has only two other flags up, you have the loss in production of three looms—"

"That will do, Old Timer. I see what a fool I've been and I am going to buy the best stick I can find."

"That's right, Jim, and it will *save* you money. The same reasoning applies to jack straps, harness straps, leather binders, leather covered front box plates, etc."

"How much do you pay for the leather you use for those things, Jim?"

"Well, we buy 'bellies' and I think we are not getting it for less than 50 cents per pound."

"Allow me to suggest, Jim—"

"Suggest did you say, suggest nothing, tell me what's on your mind. I know it can't be as bad as the picker sticks."

"Yes really the strapping proposition is worse, Jim, because there is so much more of it, and any one of them can stop a loom just like a picker stick can, and more than that, when a harness strap or jack strap breaks you generally made a bad pick out or a place in the cloth which will be marked off and maybe make a short length that your mill will lose one half cent per yard on, thereby losing more than a good strap would cost.

"Suppose, Jim, you test the following idea out to determine for yourself whether it will pay you to buy high priced leather or not.

"Order 50 to 100 pounds of 5-inch single belting strips or the width of belting that you can cut up into strips wide enough to make your jack straps or binders. Single belting 5-inches wide makes four strips 1¼-inches wide that we cut for our binders.

"You can buy these belting strips from the belt manufacturers just like they get them out, preparatory to making up into belting. They are the length of the hide and of course have no cemented laps in them.

"Now buy you a rubber stamp something like this:

Manufacturer's name .....
Date put on.....

"Stamp this on the wooden binder or the leather strap as you make them up. Then have the supply man, or whoever lets supplies out to fixers fill in with ink when put on the loom.

"Get two or three kinds of good belting and also stamp some of the bellies you are now using. Then you can tell just which is the cheapest for you to use when they begin to give out or come back to the supply room.

"It is not a bad idea to date your check straps also, and of course you are already dating your shuttles. You really should have a book with the number of every loom in your mill in it. When a shuttle goes to loom 123 or any other number put the date beside that number and in a year or two you can see which looms have used two or three shuttles while others haven't used any."

[The continuation of Old Timer's trip through Jim's weave room will appear on these pages in the September number.—Editor.]

BYRON FRANCIS CARD, superintendent of the Columbia Mills, Columbia, S. C., died at his residence on July 22nd, following a short illness. Mr. Card was a native of Rhode Island, coming South about 1900 and locating in Charlotte, N. C., after operating some of the larger mills in New England. His southern connection was with the Mount Vernon-Woodberry Mills, Inc., of Baltimore, Md., and on leaving Charlotte, he operated the Tallassee Mills, at Tallassee, Ala., later going to the Columbia Mills, where he had been superintendent for nine years prior to his death. Mr. Card was one of the best known operating executives in the South and was considered an expert in the manufacture of mechanical ducks and other fabrics. He was a 32nd degree Mason and a Shriner. Surviving him are his widow, one brother, Fred W. Card of Boston, and one sister, Mrs. Stutely Phillips ,of Albion, R. I.

ARTHUR R. DICKINSON, manager of the Clark Thread Company, Newark, N. J., died on July 12th, at Montclair, N. J., following an illness of about a year. Prior to going to Newark, Mr. Dickinson had been agent of the Lancaster Mills, Clinton, Mass. Prior to that time he had been connected with Lockwood, Greene & Company ,in charge of the then International Cotton Mills at Hogansville, and LaGrange, Ga. Later he removed to Atlanta and had general supervision of all of the organization's southern mills, following which he went to Clinton with the Lancaster Mills. Mr. Dickinson was born in Fall River, Mass., and was a member of the first class graduated from the Bradford-Durfee Textile School.

FORREST B. GARDNER, formerly general manager of the General Asbestos & Rubber Co., North Charleston, S. C., and more recently manager and superintendent of the Belton Yarn Mills, Belton, Texas, has resigned this position to become vice-president and general manager of the Monticello Cotton Mill Company Monticello, Arkansas.

W. S. LOWE, has become superintendent of the Cumberland Hosiery Mills, Cumberland, Maryland.

T. B. MOORE, formerly overseer of weaving and assistant superintendent at the Minneola Mfg. Co., Gibsonville, N. C., has resigned to become overseer of weaving at High Shoals plant of the Manville-Jenckes Co., High Shoals, N. C.

It is announced that the next meeting of the Texas Textile Association will be held at the Hotel Westbrook, Fort Worth, Texas, on Friday and Saturday, October 15th and 16th. J. G. Coman, superintendent of the Mexia Textile Mills, Mexia, Texas, is president of this organization, which includes in its membership the superintendents and overseers of the Texas cotton mills. Dan H. Poole, superintendent of the Sherman Mfg. Co., Sherman, Texas, is secretary-treasurer. The program has not been announced, but it is understood that practical mill problems will be discussed at some of the sessions.

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Asks for Information on Crepe Yarn

EDITOR COTTON:

I would like very much to obtain some information through the discussion department of COTTON relative to the standard or most generally accepted twist for 50s/1 C. P. crepe warp yarn. I would appreciate some information as to what twist the majority of mills are using for this yarn; and the number of looms to the weaver, using Canton filling and the 50s/1 crepe warp yarn.

Any information or advice as to the proper and most efficient method of slashing crepe warp would also be appreciated.

CONTRIBUTOR NO. 5541.

Breaking Strength Formulas.

EDITOR COTTON:

In your January issue, "H. H. Y." discussed the inconsistency of breaking strength formulas as applied to cotton yarns, and I have not seen any answers to the point he raised.

Since there has been no reply by anyone who has worked on tests of this sort, and who might be in a position to give authoritative information, I wish to advance what appears to be the probable explanation of the inaccuracy of the formula on fine numbers.

The breaking strength of any homogeneous material is proportional to the cross section of the sample tested; twice the cross section giving twice the breaking strength. Cotton yarn is not, however, a homogeneous material, but a built up material, held together entirely by friction. Since the cotton fiber, however fine, is of finite dimensions, there is a limit to the fineness of yarn that can be spun from cotton, and there will be a point at which the strength of the yarn is not the sum of the strengths of the various component fibers.

In the ordinary ranges of yarn size, the cross section of the yarn is great enough to contain sufficient fibers to present enough friction surface to hold the fibers together firmly, so that under strain they will break before the fibers can slide over each other and part, as in roving. As the count becomes finer, there will finally be reached a point at which there are not enough fibers in the yarn to cause firm frictional contact, and the strength of the yarn will be a matter of the degree of frictional contact, rather than a question of the actual breaking strength of the fibers.

A number that was so fine as to contain only three or four fibers twisted together, would not break under strain, but would simply pull apart like roving. How many fibers will have to be twisted together to get a yarn that will break, rather than part, I do not know, but I think my point can be seen.

After yarn is coarse enough to present sufficient frictional contact to firmly hold the fibers together, there is no reason why the strength should not be very closely equal to the product of a breaking constant and the cross section of the yarn.

As in all empirical formulas, the determination of the ever-present constant is the difficult part. In the case in point, I should say that the so-called constant is a variable really. It will no doubt be approximately constant for a certain range of yarn numbers, then, with a slight change in value, it should take care of another range of numbers, and so on. The value found for the constant in computing the Draper tables, was no doubt the average value that gave the best results over the usual range of commercial yarn numbers.

The value of the constant will naturally change with the length of staple and character of the cotton as well. The principal reason for the greater strength of combed yarn is the absence of most of the short fibers that contributed much to the bulk of the yarn, but little to its strength. In very coarse numbers, this is probably the only reason for combed being stronger than carded, yet in very fine counts, the frictional effect must be taken into consideration. If all fibers are long, there will be greater frictional grasp where a given cross section is considered than if some short fibers with little or no frictional effect are present.

Length of staple should also affect this for the same reason. In a piece of yarn large enough to present enough frictional grasp to hold all fibers firmly to the breaking point, the strength of the whole yarn should be very nearly the sum of the strengths of the component fibers, with an allowance made for length of staple. This constant, dependent upon the length of staple, will have a very important bearing on the breaking strength of the yarn.

To illustrate. Assume a piece of yarn made of one-inch cotton of absolutely uniform staple. Assume also, that this yarn has a cross section containing exactly 1,000 fibers. In any one inch of this yarn there will be just 1,000 fibers ending. Had the staple been two-inch, there would be only 500 fiber ends in an inch. With half-inch staple, there would be 2,000. Naturally this affects the breaking strength tremendously. Yet there is no way of expressing this effect mathematically except by calling on a constant to represent it. The constant, or near-constant, has to be determined by experiment, so that the purely mathematical

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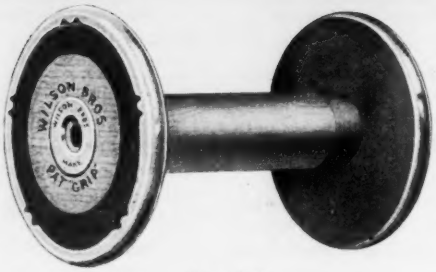

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portion of the formula is of no value without the empirical part.

Any dependable breaking strength table will undoubtedly have to be made up from a series of careful experiments made under the most particular kind of laboratory conditions, and as cotton varies so in staple and natural strength, any table will be simply a sort of guide post to go by, and not an invariable criterion. M. C. (MASS.)

Points on Combing.

EDITOR COTTON:

Having read the letter in the January issue of COTTON by "N. C. M. (Mass)," I take the liberty of answering his question at this time; also, to pass a remark on his statement in the first paragraph, which says:

"I want to say right here that our comber men who read COTTON will not say what they think because they have been getting away with something that can't be done."

As I was one who offered suggestions to "Joe" I suppose that I am one of the accused, but if "N. C. M." wants a frank or decisive answer to "Joe's" problem, then I say No, the nipper plate on a Whitin comber cannot be set perfectly to the steel detaching roll and have all the other settings correct. When I answered "Joe" in the November, 1925, issue I did not give as decisive an answer as this, but informed him as to how I used to overcome the same trouble and told him I had never met anyone who could reset one comber after another and get the setting in question perfect without doing so at the expense of another setting. I have the setting as near perfect as any man could have it, but then I could not say how it was done, for I only did to that comber what I have done to other combers, and the setting was not as perfect as that which could be gotten on a Nasmith comber. If the nipper frames were in separate stands a more perfect setting would be achieved and the evil would be cured, but that would mean making other changes on the machine. Then there are other things that require changing to meet the demand of the textile trade, and maybe in trying to solve the latter problems the former is forgotten, or will be taken care of.

I will now answer "N. C. M's" questions, although I can think of a plenty to write about combers, but can only do so as time permits. As it will not take as long to answer him as it would to write about some things I have in mind, here goes the answer to his questions:

First, I never have any trouble in getting the amount of waste percentage desired, for I always see to it that the lap machines are periodically overhauled and scoured, for what the quality of the work that a picker produces is to the card, the same is true between the lap machines and the combers. Give good even laps to the comber so that the nippers can grip the lap evenly all the way across, and with the correct settings on the comber that the work requires, then I fail to see why there is trouble in getting the desired amount of waste and there should be little variation unless the cotton is being changed in the picker room and a batch is coming through that may contain a little more waste or a little shorter staple or not be even bodied. Then the waste percentage can be expected to increase. If running under dry conditions the increase would be slight and no more than the usual variation found in weekly sizings.

Second, stop motions should always bet set to work right and a careful eye kept on them at all times, for if one of the slivers is lapping around the detaching rolls in place of being delivered to the table, the finished sliver is uneven and should be removed. Also, with the stop motion not working, that roller lap may do a lot of damage if not detected at once and the trouble stopped by fixing or repairing the motion. Also, the coiler stop motion should be at all times working accurately, for when a sliver breaks at the coiler and is running on the floor ,that sliver goes back with the reworkable waste and increases the cost of production and helps to make split laps for the cards.

Third, we never have any trouble with our condenser system, for we have the Roth aspirator backs. Occasionally one of the inside dampers turns around with the perforated tube, due to the set screw becoming loose on the end of the shaft, and then the trouble makes itself known by causing the sliver to become straggly or uneven. We have as many inside dampers coming loose as there are 1914 Fords. The Roth aspirator backs are superior in every way in my opinion, as the condenser with the plunger on some of the Whitin models gives a lot of trouble and condenses the waste too much. The sliver produced from them sometimes gives trouble in the waste mills on the evener and stripping rolls on the opener machine. On some of the 1904 model Nasmith combers, they have the doffer backs where the noils were stripped from the doffer by the comb (doffer) and taken over a curl similar to the one on a ribbon lap machine and laid on a lattice that carried the six webs of waste to a draw-box near the end of the comber and drawn through the rolls like the draw-box on the front of the machine and delivered to a coiler and then to a sliver can. But many of the mills that I know of have dispensed with the foregoing arrangement owing to having trouble in selling their waste and trouble in keeping it in condition. The doffer back also has its evils through getting damaged and causing the noils to bunch up and be carried back onto the brush and damaging the half lap, and if not kept set right it will nep the waste, decreasing its commercial value, and then again, the back of the comber is not kept as clean as with an aspirator back.

Fourth, the brushes do clean the half-laps and they do not carry bunches providing the brushes are in good condition and they are set up into the half-lap the right depth. To set a new set of brushes correctly to the half-lap, first get the six or eight brushes according to how many heads there are in the comber, then take them where they can be gauged. I have mine ganuged with a bench vise. Open the vise the width of one of the brushes, generally about 4¼-inches, and see that all the brushes are the same diameter, if not, they should be, for what is to be done if one or two are smaller than the rest? Set the brush shaft parallel and get all the brushes set into the half-lap. If some brushes are smaller, the large brushes are deeper than others and some will get worn out sooner than others or some are not able to clean the half lap as it should be cleaned. When all the brushes are the same diameter put them on the brush shaft and into the bearings; then proceed to set the brushes up into the half-lap until the tips of the brush fibers scarcely touch the brass matrice or strip that the needles are set in and it will be found that can easily be done if the brush shaft is set true and not binding in the first place. Then the half-laps will be

clean at all times and not found with one or two half-laps full of neps and short fiber that have become matted and bunches accumulated because the brush cannot clean it. But regardless of how the brushes are set and half-laps cleaned, there will be bunches on the latter if the back is choked up and the proper exit for waste blocked. Also, if there are any needles bent on the half-lap they will cause a bunch.

Fifth. We get a good clean and perfect web for the amount of waste taken out, for anyone can go to any of our combers and throw the web over the creel without causing a rupture in the web, and I am not afraid of anyone commenting about the quality of the web either, for I know of mills that take out two to three per cent more waste than we do, on the same class of work and using the same cotton, and our yarns are evener and break better, and their yarns are neppier than ours.

Sixth. We do not have any lap stop motion on our combers to prevent the tail end of the laps from running through to the half-lap. While I think they are a good thing to have on, providing the quality of the help demands it, we are not bothered much with this evil, and if a lap does run out, there is no damage done to the half-lap owing to the manner in which I have all the ribbon lap machine tenders instructed on how to put the end of the lap over the wood spool when starting to make another lap. They have to overlap the spool the full width, so when a lap is running out on the comber, and it is not noticed, the end of the lap being even and the full width of the spool will, nine times out of ten, run through to the end of the lap, and as soon as the sliver in the pan comes light the sliver tumbler spoon will tip and stop the machine.

Seventh. All combers should be reset at least once a year regardless of the quality. On quality yarns, every six to nine months at the longest and the top combs should be set periodically like the general overhauling, only oftener, say for a section of 50 combers every two months, that averaging about six a week.

Eighth. The brushes should be turned around periodically, also taking one or two a week, that depending on the amount of combers on the section and also the amount of help a man has, for I have found that in some mills they expect the comber man to have this done and that done and no help to do it with and only the same amount of time to do it in. The brushes must be turned, because after running so long a time at the speed they do, the bristles become kind of hooked or leaning in one direction, and by taking them out the difference can be told by running the hand first one way and then the other against the tip of the bristles. After turning them and putting them back into place leave the brushes loose on the shaft and turn them individually by hand through the half-lap and it will be found how much they need raising, for if they are not turned or raised they cannot keep the half-lap cleaned and the latter will get all clogged up between the strips and stop the fibers from being bedded into the half-laps during the period of combing by the latter.

Ninth. In answer to the last question there are a number of things to write about, but before I write of some of these things that play an important part in producing good clean work I want to say one thing, and that is, to produce good clean work or quality work, as you may say, from any grade of cotton, the comber has to be given a chance to show its ability, and to do that cannot be restricted to a certain percentage of waste. It is essential to increase the machines' combing field, not to decrease it. By that I mean let the half-lap and top comb comb all that they can. Say for instance, the comber was taking 16 per cent of waste out and it was decided to increase it to 18 per cent to produce better work, regardless on which type of machine the change is made or who makes it, the combing field or ability is increased, which shows right away the ability of the comber was restricted in the first instance.

There are several parts on a comber that are important in producing good clean work by assisting each other through being set to be capable of maintaining the quality that another part has already done, so it is practically impossible to name one part that is the most important, as I will show.

Suppose that the nipper knife is set to the half-lap 25/1000s distance, and that is as close as I would advise, then the half-lap has the chance to thoroughly comb the tip of the lap. Now it is up to the top comb to do its work by being able to enter the lap as soon as possible and penetrate the cotton deep enough. If it does not, then the fibers drawn through the top comb do not receive as good a combing as that part of the fibers combed by the half-lap and the quality is not maintained. Or say the nipper knife is not set close to the half-lap, then the latter cannot give the tip of the lap a good combing, because its combing field is restricted and the top comb is given a poor chance to show what it can do. As I have shown the reason why it is impossible to name one part that is the most important on a comber to produce the foregoing results, I will now name all the important parts and things.

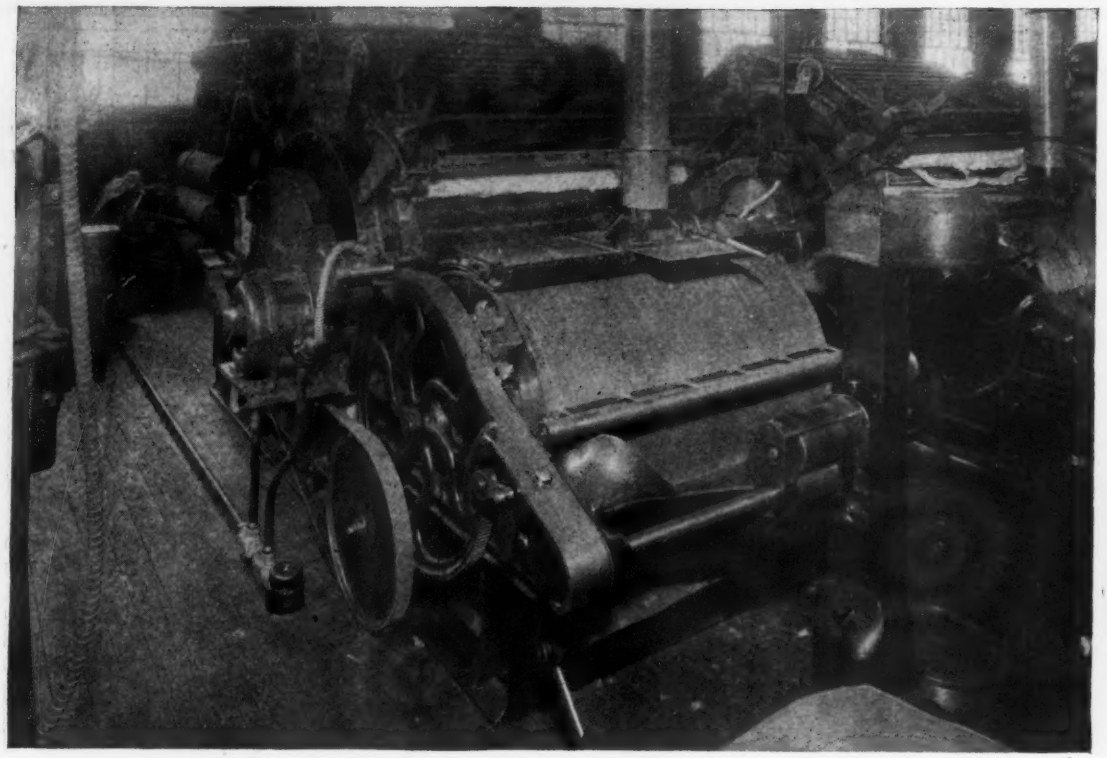
Nipper knife to half-lap; good brushes to clean the half-lap; keep the half-laps in good condition; top combs must be kept in condition and set to comb the cotton thoroughly; time the top combs enter the cotton; the detaching rolls (leather) should be kept in good condition and parallel to the bottom steel roll; time detaching; time of feeding; amount fed; and weight of lap. If there is a doffer back it should be kept in good condition, for a bad fillet on the doffer will only accumulate short fiber and form bunches and they get carried back onto the half-lap; time nipping; the setting of the cushion plate and feed roll to the detaching roll; and the angle of nipper knife and top comb also are important.

I will not say anything about cotton, for some cottons are evener bodied and contain less nep and leaf than others, and when a comber man is informed what per cent of waste to take out he sets the combers to the best of his ability to produce as good work as can be attained under the existing conditions.

The last thing I want to say is to let the half-lap and top comb do all the combing they are able to do if good clean work is desired.

I trust that my letter will be of interest to "N. C. M." and to other readers of COTTON and that I have covered the subject as fully as he desires. JOCK (MASS.)

A. Klipstein & Company, 644-652 Greenwich St., New York City, have recently issued a booklet descriptive of the sizes, softeners and finishes manufactured by that company for the textile trade.



Using a Motor Driven Card Stripping Roll

EDITOR COTTON:

I have noted in the June issue of COTTON, on page 824, the letter of inquiry from "J. F. L. (Ala.)" in regard to using an individual motor for stripping motor driven cards equipped with an individual motor drive. Perhaps the following information on this subject may be of interest to him and other readers who noticed this question and would like to learn of experiences along this line.

I know of one application where the mill uses a 1¼-h.p., 1,200 r.p.m. motor with special torque to drive the card and a small stripper motor of intermittent rating, with ¾ rated horse power, 1,200 r.p.m., with armature mounted on a hollow sleeve for direct connecting to the shaft of the stripping brush.

The scheme of control used here is to have one magnetic switch mounted remote from a set of 16 cards, this switch being wired up to a plug receptacle at each card. The solenoid coil for the magnetic switch is also wired to each card.

The motor is portable and can be carried around from one card to the other. It was figured that one stripping motor would be ample for 16 to 20 cards. The motor is controlled in the following way: The motor is furnished with terminals carried through a flexible conduit with a plug at the end for inserting in a receptacle. The circuit is not alive until the push button circuit or solenoid circuit is closed through a snap switch mounted on the motor.

Another scheme for the control of this motor, which may be of interest to your readers, is shown in the accompanying photograph. The plan is to use the same magnetic switch and the same motor, but the solenoid circuit for the switch is wired up to a foot-operated push button station at each card. This push button is a normally open switch.

When the stripper motor is plugged into this receptacle, the circuit is still open to the motor terminals until the magnetic switch is closed by the operator pressing on the foot-operated push button station with his foot. This action simply closes the solenoid circuit of the contactor switch, which immediately connects the motor to a live circuit. The advantage of this scheme is that the push button station is located in a convenient place for the operator when stripping and that the motor is automatically stopped as soon as he removes his foot or walks away from the card.

I have found that a ¾ h.p, 1,200 r.p.m. motor takes care of this stripping operation in a satisfactory way.

CONTRIBUTOR No. 239.

Excessive Breakage of Ends in Spinning.

EDITOR COTTON:

On the discussion page of the April number of COTTON in the "How Other Men Manage" department appears a letter under the heading "What's the Matter With This Spinning?" and signed "O. P. (N. C.)," in answer to which I wish to give a few suggestions: Change the draft on the first drawing to 5.02 or make a 65 grain sliver; change the draft on the second drawing to 5.06 or make a 70 grain sliver; change the draft on the slubbers to 3.06 or make a .50-hank roving; and then change the draft on the speeders to 6.00 or make 1.50-hank roving.

The actual draft on the spinning was 6.32, and this change makes the actual draft on the spinning 9.30. This gives a more uniform draft all the way through. I feel sure if this change is tried out there will be a big improvement in the spinning. Also, will say in regard to travelers,

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if this contributor will have some No. 7 travelers made with a regular No. 3 circle and have the opening made smaller, it will help his spinning much more than trying to run a No. 2 circle. I should like to have him go back to slubbers and close the rollers just as much as possible, take out all the twist possible and also close the rollers on the speeder as much as possible and take out all the twist that can be taken out.

I should be glad to hear of the results of this change if tried out, and I am sure it would prove much better than the present layout of drafts, etc. R. R. (N. C.)

EDITOR COTTON:

Referring to a letter in the April number of COTTON by "O. P. (N. C.)," will say that there are many things which could cause the ends to break down in the spinning, some of which I am giving herewith. To begin with, there are some things against him, things which he cannot remedy, probably, owing to his equipment of machinery; doublings in the picker room, doublings on the fly frame, also on the spinning frame.

He does not mention the method he employs in handling the waste going back to be re-worked. Excessive scavenger waste, roving and other waste to be re-worked back through the mixing will certainly play havoc with breaking strength. Also spinning from a single roving at a roller speed and a spindle speed that is greater than the shop requires will certainly go against his spinning.

Another thing which he does not mention is the diameter of his warp bobbins. Will say here that if he is using a bobbin that is under 7/8-inch in diameter on a 2-inch ring, his bobbin is too small in diameter, and I would advise his getting a 7/8-inch barrel bobbin. Still another thing against his spinning is the warp wind.

It may be in the case of this contributor that the management does not want to spend the money for the purchase of a filling builder that will decrease the tension at spooling, nevertheless, seeing this condition as he indicates, I would advise putting on filling wind and speeding the ring rail down fast and running it up slowly. This will help the balloon of the traveler and allow him to arrive at a more balanced traveler to suit his case. He should not run his frames higher than shop speeds require and should work on his waste problem all he can to reduce it in all departments of the carding and spinning.

Reworked waste makes weak roving and yarns. I would suggest that he make his roving a little heavier, just so he can draw 8.50 or 8.75 on the spinning and shorten it on the fly frames. Too long a draft on the fly frame is worse than a little longer draft on the spinning, especially on single roving.

So far as the traveler is concerned, he can not get a traveler to give a uniform tension throughout the entire doff on a warp wind, for the simple reason that the bobbin is increasing in diameter all the time, every layer of yarn changes the traveler governing the centrifugal force of the increasing diameter speed of the bobbin, but on a filling wind this is not so great, the only difference being between the first doffing to a full bobbin, which is just the distance of the throw of the ballooning at the bottom of the bobbin to the top of the bobbin when the frame is filled, or the bobbin rather. "O. P." will never get a uniform traveler to suit his case with the warp wind. The filling wind should work wonders in the running of his spinning, and I would advise that he cut that speed and work on quality for a while, and quantity will take care of itself. J. F. L. (ALA.)

EDITOR COTTON:

In the April issue of COTTON "O. P. (N. C.)" wants to know what is the matter with his spinning. Well, I want to emulate the spirit of "Old Timer" and do my bit to help him out. This contributor states:

"If I put on a traveler to hold the balloon down, when the frame gets nearly full it will pull the ends down after the frame is doffed. And if I use a traveler that won't pull the ends down when the frame first doffs, they will balloon so much when the frame gets full that they will lash down then."

Right here I want to say that the trouble is not in the type of traveler. The trouble may be in the diameter of the empty bobbin. Remember this, the smaller the bobbin barrel, the more the path of the yarn coincides with the radius of the ring. Such a condition creates a pull that no type of traveler can overcome and prevent ballooning when the bobbin is full.

I think the trouble is in the thread board. "O. P." should go at the trouble as follows: Put on a traveler that will prevent ballooning when the set is full, and next, raise his thread board enough to ease up the tension after doffing the frame.

His carding hang-up in my judgment is o. k.

WASH (R. I.)

EDITOR COTTON:

Replying to "O. P. (N. C.)" in regard to the difficulty he is having with his spinning. On account of the nature of this trouble it is difficult to say that the excessive end breakage in the spinning room is due to any one condition that he has reported. Due to the fact however, that I have had experience with 13s yarn I am going to give him a tentative layout that can be made to produce good results. By following this and watching closely the details of manufacture he can get better than the manufacturers speed and a breaking strength as good or better than Draper's new standard from cotton of 15/16-inch staple.

The machinery details listed in this inquiry are about right for the yarn spun, and I do not believe the trouble is due to the inadaptability of the machinery listed.

The party making this inquiry stated that he is using 1-inch cotton, which, if true, is more than adequate for the yarns spun, but there is now so much trouble being experienced by the mills on account of short staple cotton that I want to suggest that he adopt some regular and systematic method of checking the actual deliveries. 1-inch cotton is now being sold at a big premium and it would be possible to effect quite a saving to his mill by using 7/8-inch to 15/16-inch cotton for 13s yarn. Where other conditions are right this staple will give an adequate breaking strength.

Of first importance in the manufacture of yarn is the method of laying out the cotton mix. Place as many bales as possible around the bale breaker and if there is room a mix should not contain less than 12 to 15 bales. These should be selected for grade, staple and character to represent an average of the cotton available. The operator should feed small quantities from each bale opened securing as good a mix as possible. Where practicable, the in-

stallation of ageing rooms and conditioning of the cotton for two or three days will be found very helpful to the yarn and very economical for the mill in the matter of saving waste. The modern compressed or high density cotton needs to be aged before being fed into the mill so that the fibers will stand the cleaning action of the beaters.

"O. P." does not state if he has two or three beaters in his picker room processes, nor does he say how many eveners he has. If there are no eveners on his hoppers he will find it a great help to have these installed. Present day practice calls for at least two eveners in the picker room, whether there are two or three processes. These eveners must of course be set properly so that the fulcrum is at the same point on each machine and they should make a standard lap with either three or five laps up on the apron. An evener that will not do this is not operating satisfactorily.

At this point I am going to offer a tentative layout of drafts that I believe will give good results on this yarn:

Breaker laps	16	ounces
Finisher laps	14½	ounces
Card Sliver	55	grains
Finisher drawing sliver	58	grains
Slubber roving	.60	hank
Speeder roving	1.90	hank

It will be noted that this layout contemplates several changes from the schedule that "O. P." has furnished and I am going to explain my reason for so doing. First of all, I have recommended an increase of about 20 per cent in the weight of the finisher lap, which will allow for a reduction in beater speeds in the picker room. He did not give his picker speeds, but these should be as low as it is possible to have them and still be able to keep up with the cards. There should be about 100 blows per inch on the pickers divided about as follows: Breakers—35 b. p. i.; finishers—65 b. p. i. Few mills have sufficient picking capacity and it is an even bet that the slower speeds will be helpful to "O. P."

Next, I have shown the card sliver to be only 55 grains, which is two grains lighter than his present sliver. These two changes give an increased card draft which is desirable for various reasons. Drafts beyond the cards can be made easier and picking behind them can be slowed down as explained. Drawing drafts are slightly less than 6.00 and the slubber draft is shortened to about 4.15. Speeder and spinning drafts are lengthened somewhat because it has been found more desirable to have the longer drafts in the later processes. At present I am using a draft of about 9.40 on one number of roving with spinning drafts between 13.00 and 14.00 on double roving. This runs well, in fact better than the same number ran when drafts were higher in the earlier processes.

Of next importance are the settings employed in the various processes. In the picker room the beater settings to feed roll should be 3/16-inch to ¼-inch for blade or Buckley beaters with a closer setting for a Kirschner beater. The grid bar settings cannot be given because the variations in the condition of the stock will determine this. Poorly opened cotton does not clean well in the picker room for a number of reasons, one of them being that it does not permit of sensitive setting of the grid bars. Where the cotton is well opened and aged thoroughly it is possible to even take out from two to five of the grid bars altogether without taking out good fibers in the motes to excess. For this grade of work the card settings should be about as follows:

Feed plate to licker-in	.012
Mote knives—top	....
Mote knives—bottom	....
Licker-in screen—blank part	.029
Licker-in to cylinder	.012
Cylinder screen to cylinder back	.029
Cylinder screen to cylinder middle	.058
Cylinder screen to cylinder front	3/16-inch
Flats to cylinder	.011
Cylinder to doffer	.007
Doffer comb to doffer	.012
Back plate to cylinder	.029
Stripper Plate—top	....
Stripper plate—bottom	....

You will notice that I have not given the setting of mote knives or stripper plate. These omissions are made for the reasons that local conditions will determine what is best. The same principles apply here that were mentioned in connection with grid bar settings. In addition, it will be found that the condition of the card clothing, frequency and thoroughness of stripping, and condition of the stock will determine the proper setting of the stripper plate. It is a good idea, however, to have the bottom part of this plate at least .005 closer to the cylinder than the top. This helps to draw the fibers closer to the surface of the cylinder and makes for a better and more orderly arrangement of the fibers on the doffer. In order to do this it is sometimes necessary to file the cast iron supports on the ends of the plate.

After suitable settings have been adopted it is necessary to build around the cards a careful and thorough-going system of checking the settings, grinding, stripping, cleaning and in fact every operation must be carefully watched in order to secure uniformly good results. To do this requires much thought and considerable time, but "O. P." will find that he is liberally repaid for his efforts.

After the stock leaves the cards its processing is largely a matter of drafting and doubling. Variation in weight and smoothness can be preserved somewhat by this later treatment, but it is impossible to overcome defects originating in the early processes. Of primary importance in this connection is the setting of the drafting rolls. I will not attempt to give definite settings, but will only lay down general principles, which if followed, should produce the best results. Roll settings, as a rule, should be as close as can be used without damage to the staple of the cotton or in spinning, without cockles showing up in the yarn. "O. P." can determine by trial what is best for his work. In this connection it is probably worth while to mention that with the exception of specially constructed waste machinery little of our cotton mill equipment is made so that it can be set too close for cotton of less than 1-inch staple. To illustrate, on almost any spinning frame it is impossible to set the rolls close enough to show cockles on one inch cotton or less. When using one inch cotton it is sometimes noticed that cockles appear, but investigation will always show that there is mixed staple giving some fibers sufficiently more than one inch to cause the trouble. This mixing of staple usually occurs at the gin where two successive bales ginned are of different length staple. A farmer never gets all of his own seed when his cotton is

ginned, but he gets some of the fellow's before him. That next year he is innocently growing cotton of mixed staple, and after several years the long staple will be all over the community. The best way to overcome this is to use the one piece saddle which removes the weight from the middle spinning roll and reduces the tendency to cockle.

Now that I have given some of the fundamentals to be observed all the way through spinning, I am going to give a few specific points that will perhaps have direct bearing on the excessive number of ends breaking on his spinning.

At the drawing frame there is great possibility of increasing variation and unevenness. Numbers of mills do not follow the practice of continuous creeling but instead set in a full creel and run it out all at one time. This produces about twice the per cent variation that occurs when continuous creeling is done. A little later I will have more to say about variation, but I wanted to mention this in connection with drawing frames.

On the slubbers and speeders it is necessary to use great care in a number of matters. First of all comes the question of speeds and twist. The spindle speed on the slubbers should be about 600 and on 8 x 4 fly frames about 1000 r.p.m. The twist should be determined with great care. Too little will cause thin places and too much will make the drafting on the spinning frames difficult and variations excessive. It is hard to give twist factors unless the staple of cotton is known but if the cotton is actually one inch as "O. P." states then a factor of 1.2 on slubbers and 1.3 on speeders should be all right.

In addition to speeds and twist the other important factors to be watched on the fly frames are lay and tension. These two are dependent on each other and it is first necessary to determine the lay which should be about 9.3 $\times$ square root of the hank equals the correct coils per 1-inch on the bobbin. After this the tension should be adjusted so that it will not be necessary to shift the cone belt from the beginning to the end of the doff. Sometimes this is quite hard due to the mental attitude of the help which must be overcome before uniform tension can be secured.

I am now going to list a few things that "O. P." can check up on in his spinning room which might have some bearing on the excessive end breakage at this point.

1. Roll Covering
2. Saddles, Stirrups and weightings
3. Insufficient or improper oiling
4. Temperature and humidity
5. Condition of frames
6. Variations
7. Bad Skewers
8. Travelers that do not fit the ring
9. Bad rings
10. Bad gears or gears not properly set
11. Irregular twist in roving
12. Incorrect setting rolls

There are numbers of other things that could be listed as trouble makers but the above list includes many things that are responsible for trouble in some mills.

Previously I mentioned something about variation in weights and stated that I would have more to say about this later on. If I were to try to put my fingers accurately at "O. P.'s" trouble I would say that this was perhaps his greatest trouble, and this because of the way he says that his travelers behave. The fact that a change of one number in the weight of his travelers will carry him all the way from ballooning to pulling down his ends. The heavy ends will balloon and the light ends will pull down. Now if "O. P." will weigh one side of yarn and figure out his variations he will be able to find just how many ends are really 13s and if he will go back and work on some of the things suggested for the earlier processes he will find that his spinning will do better.

I am going to make just one more specific suggestion and that is for "O. P." to reduce his spindle speed to a little below standard instead of a little above. This will help the running of his work a great deal and he will not miss the production to any appreciable extent.

CONTRIBUTOR No. 1516.

Loose Gauge Settings

EDITOR COTTON:

I noticed from the letter submitted by "R. H. (Ga.)" in the April, 1926 number of COTTON that he supports the tight and loose gauge advocates. He says he has the gauges to go by but cannot always set to those gauges because of some conditions that evidently won't allow it.

I should think it was a case of mighty queer conditions when one cannot use his gauges. Why would it not be better to sell the gauges and put the money in the bank, where it would rate some interest?

When this contributor sets to a loose 7 or a loose 10, as the case may be, he assumes that his cards are set to a 7 or a 10 gauge, but are they? Not much. They are more than likely set to an 8 or a 9 in one case, and to an 11 or 12 in the other. That is the trouble with so-called tight and loose settings; one never knows to what gauge the cards are set.

In a case like this wouldn't it be much more sensible to set to a thicker gauge? Then a man would really know to what he had set. What is the use of a person lying to himself and trying to make himself believe something which is not true? Why doesn't "R. H." go over his loose settings with heavier gauges and find out just what he is setting to?

J. N. C. (MASS.)

Finishing 2.35 Drill.

EDITOR COTTON:

This is in reply to the question from one of your contributors with reference to starching a 2.35 drill. The inquirer does not state so, but I presume this is dyed khaki and that he wants it weighted up. This whole subject is one on which I think most everybody is experimenting at the present time. There seems to be a demand for more and more weight all the time, and as the weight is increased, the scratching, as we call it—or as the inquirer mentions, making a mark when his fingers run over it—is more pronounced.

We are right now in the midst of some experimenting and do not feel that we are in position to offer anything that would be of particular interest at the present time.

CONTRIBUTOR No. 212.

EDITOR COTTON:

In reply to the question with reference to finishing 2.35 yard drill to weigh seven ounces per yard, I have never found it possible to weight cloth of this construction to seven ounces per yard and keep away from the tendency to scratch. My experience has been that there is a reas-

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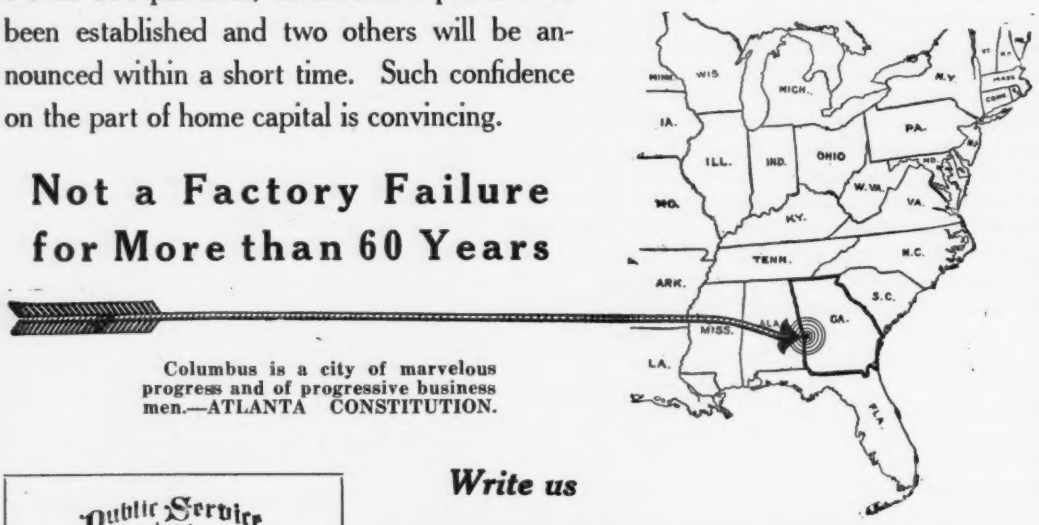

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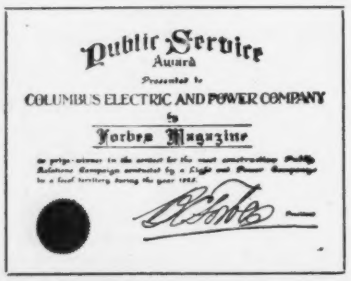

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onable limit to which cloth should and can be loaded without scratching, and if this limit is exceeded scratching is bound to result. This is particularly true now that gray mills are using so much more gray sizing than formerly; in other words, the so called 2.35 drill when desized prior to dyeing will weigh much lighter than 2.35, and it is absolutely impossible to restore this loss in weight and add a whole lot more weight without getting more loading in the cloth than it can possibly carry.

It will therefore be little use for me to attempt to describe a method of doing something that I do not believe can be done properly.

I do believe that the formula suggested by your contributor contains too much starch and not enough glucose. The type of machine, material and density of rolls, etc., have an important bearing on the result.

The only real suggestion that I can give is that your contributor be satisfied with a less finished weight for this construction and I believe he will then overcome the tendency to scratch.

CONTRIBUTOR No. 213.

Spinning Cotton Waste on the Can Frame.

EDITOR COTTON:

Many of our cotton spinners and manufacturers are fast becoming impressed with the idea, which is the correct one, that in certain localities and countries abroad they are utilizing their waste cottons far better than we are. In Germany, for instance, they are importing our soft waste and linters, etc., and returning us, made from this same source, coarse towelings, scrubbing cloths, dish rags, cheap cotton flannelings, flannelettes and other goods.

The counts of yarn used for these, especially the filling, are very coarse and run from 1s to 5s or even finer and are usually made from waste, and there has been a great deal of interest of late years shown in the spinning and weaving of waste yarns in the cheapest and most economical manner.

It is always well to remember that waste spinning is always tremendously productive, not because the stock travels faster than the finer goods, but because of the low counts that are usually spun and the small amount of twist they are given, so that if a waste mule spinning 3s counts can produce 21 hanks per spindle per week, this will equal about seven pounds per spindle. A cotton mule on ordinary cottons of about 30s will produce something like 30 hanks per spindle per week, which only equals one pound per spindle, whereas it would equal 7½ pounds of 4s yarn.

It is not known to many persons who are interested in cotton waste spinning that there are machines much used in the spinning of cotton waste or wool which, at any rate as far as coarse numbers are concerned, do their work well and economically, and which are entirely different in both principle and make, as well as practically from the self-acting mule, the fly frame or the ring frame.

The Can Frame.

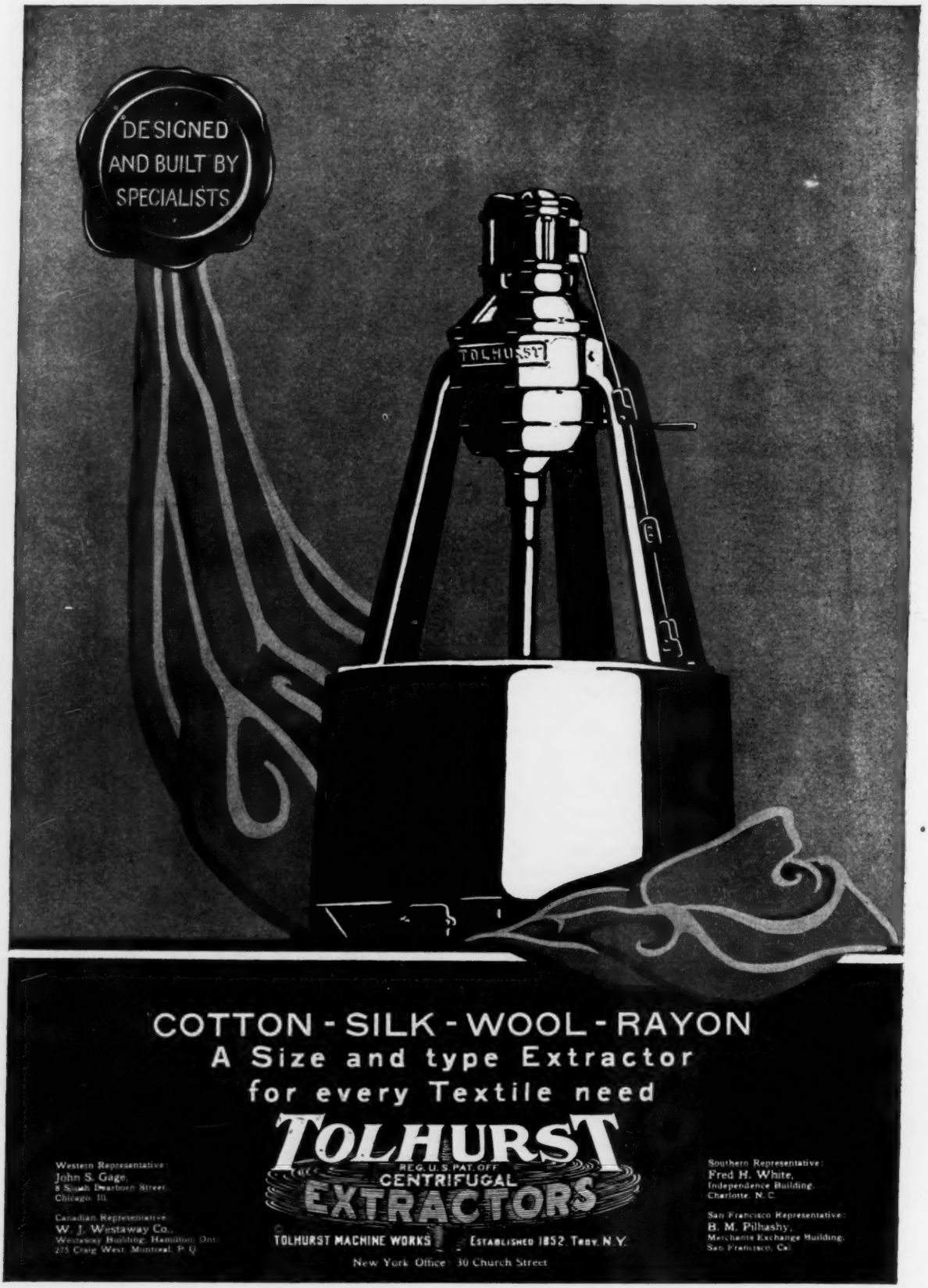
One of the most curious of these peculiar spinning frames that are used and built for cotton waste is usually called the "Can Spinning Frame." So far as the spindles go this machine is largely made on the same lines and the principle is the same as the well known filling winding machine that is often used in a somewhat extended manner upon bleached and dyed coarse hank yarns that have been treated and again rewound in the form of big cops as filling to be used in the shuttles of the big looms. In this can frame the cotton strands from long condenser bobbins are usually used and are converted into yarn that is quite suitable to be used as the filling for coarse goods.

On the waste mule, however, these long condenser bobbins are placed in the mule creel in the same form as when taken from the condenser, but this is not true when these condenser bobbins are placed on the can spinning frame. In the latter case the condenser bobbin is usually made with an end that is removable, and in this way each separate round of cotton is drawn off separately and by itself from the end of the long condenser bobbin. This small portion of the cotton (comparatively) is then taken and put inside a specially made can of the usual 9-inch diameter, but which is only about 3-inches or so deep. Every one of these shallow cans is fitted with a lid or cover and this lid contains a control aperture through which the cotton strand is withdrawn at the can spinning machine.

The most distinctive feature is a twisting or drawing by these cans and it gives its name to the machine, but it must be noted that the yarn is not twisted by the spindle but by a moderately quick rotation of the can itself. These shallow cans of the condenser cotton form in reality the creel of the machine and they are placed low down in the front of the machine just as are the bobbins of a winding frame. The cotton spool which is loose, fits just inside the can and the strand of cotton itself is drawn from the center of the cotton spool and not from the outside of it and goes through a small aperture in the middle of the can. The way in which the cotton thread is held by both ends and the relation of the aperture in the can lid to the point at which the cotton is leaving the spool inside make it quite possible for twist to be inserted, there being some sort of resemblance between this principle of twisting and that by which a draw frame coiler is said to put a little twist in the sliver, although the can of the can frame revolves very much faster than the can of the coiler, and therefore much more twist is inserted.

If we compare it with a spindle, the speed of a can is exceedingly slow and the can machine is not fitted well for making finer counts of cotton waste yarn, say anything above 5s, not exactly because its twisting capacity is limited, which of course counts, but because there is no draft in the machine either by roller drawing or carriage draft. Of course the ordinary condenser mule is limited, the draft being only about two, but to be able to readily draw the condenser end from 4s into 8s is different from being forced to leave the end at 4's counts just as fed to the machine.

One of the manifest differences between the can frame and all the other waste spinning frames in their effect on cotton yarn is explained by the foregoing. This is in fact not a spinning frame at all, but merely a twisting frame since spinning implies both twisting and attenuation. It is a good machine for producing coarse wefts of low twist up to about 4s counts. Every strand of cotton comes from the center of the can and passing upward through and over suitable guides and thence through the slit in the cone shaped cup is wound upon the spindle in cop form. This machines requires little power to turn it according to the weight of yarn produced and is the simplest one devised for twisting or spinning textile fibers and requires little skill in handling it. The can is made to suit the di-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ameter of the full condensing bobbin produced on the finisher card and causes a wide spindle gauge of about 10½ inches. The machine is double sided the same as a winding frame and resembles a winding frame more than a spinning frame.

To a mule or a ring frame man, one who has never considered the cone cup method of placing yarn in cop form an examination of the resultant cop will be rather surprising. Such cops are well built, and may be produced either on full length spools or without such foundation.

This filling winding and cop shaping principle used on the filling winding machine, which we will omit here, is the one that is essentially adopted on the can filling frame for waste with perhaps this difference, that for the regular size of bobbin or cop built up on the filling winder the yarn remains on the thin bobbin and the bobbin itself is placed in the shuttle and the yarn is drawn off the coned extremity just the same as a mule cop or a ring frame bobbin. In the can frame, however, the cops attain a very large size in order to hold a sufficient length of the very thick yarn, so that any dimensions of cop up to 10 inches in length and 3 inches in diameter may be attained. These cops are taken from the spindle and used without any bobbin inside. There is another feature about these cops and that is that in the loom the yarn is not drawn off the end of the nose or cone top, but is drawn from the inside of the cop, starting at the base or thick part. This method of drawing out the filling of course accommodates itself to the method of helping to hold a large cop in the shuttle by a band pressing against its outside or a longitudinal thin rod. This unwinding of the cop from the inside causes little or no trouble, and a very little amount of waste and is much helped by the method used in the can spinning frame of crossing the yarn on the cone.

In the can winding frame the yarn is much more crossed, both up and down, 64 inches of yarn being usually taken several times across the length of cone, and this helps quite a lot in preventing the cops from breaking and in giving easy and certain unwinding from the inside of the cop. The yarn is built up on a spindle revolving in a conical iron cup, and the spindle is gradually forced upwards by the increasing diameter of the cop, until the latter is sufficiently long. The steel spindle is then drawn out and the cop removed from it. The full length being attained, each spindle and its companion can are promptly stopped by an automatic stop motion, which acts separately for each thread so that the whole frame need not be stopped at one time.

This machine, being a double sided one, covers quite a width over all, as it is made of a size up to 80 cans as required. If the yarn has to be bleached or dyed before going to the next process this machine can be easily adapted to wind this yarn in hank form instead of in cop form for filling.

This can frame is specially used in the case of very coarse yarns spun from some of the poorest material used in cotton waste spinning. Such stuff will not stand any draft at all and this machine only twists without drafting. Much of this coarse cheap stuff is, however, used in backing and filling some exceeding good carpets and will take almost any color in dyeing very readily.

This machine is used for spinning a soft twisted weft yarn for low counts up to 3s, and this yarn is well adapted for cotton blankets, cleaning cloths, carpets, etc.

W. B. (MAINE).

Questions on Long Draft.

EDITOR COTTON:

As I predicted not so long ago, a great change in carding and spinning of cotton is here. A visit to the textile show in Boston proved that. I know a few mill managers who have decided to adopt the new method of drafting known as the draft rod system. No doubt many of the readers saw this method of drafting when at the textile show. I am willing to admit that like many more mill men, I know little about the method. However, I want to point out in this article what has been running through my mind since I had the opportunity of seeing this method operate.

The operation or treatment of the fibers is similar to that of the trumpet on a drawing frame. If the bore in the trumpet is small as compared with the size of the sliver, friction results, and this causes a certain amount of draft between the trumpet and the calender rolls, and a slack web. To cure this, we must either change the calender roll gear or use a trumpet with a larger bore.

Take a walk through any card room and watch the webs on the drawing frames, and you will discover that the web changes position due to uneven places in the sliver caused by stripping and uneven laps.

Let us now consider the efficiency of the draft rod. As I was given to understand, the reception or opening through which the strand passes, is tapered slightly. Whether it is tapered or not, the action, as stated, is similar to that of the drawing frame trumpet, because the light and heavy places in the strand will increase or decrease the friction.

I fail to see where the draft can be positive, for the reason that the heavy places will cause more friction and the light places less friction.

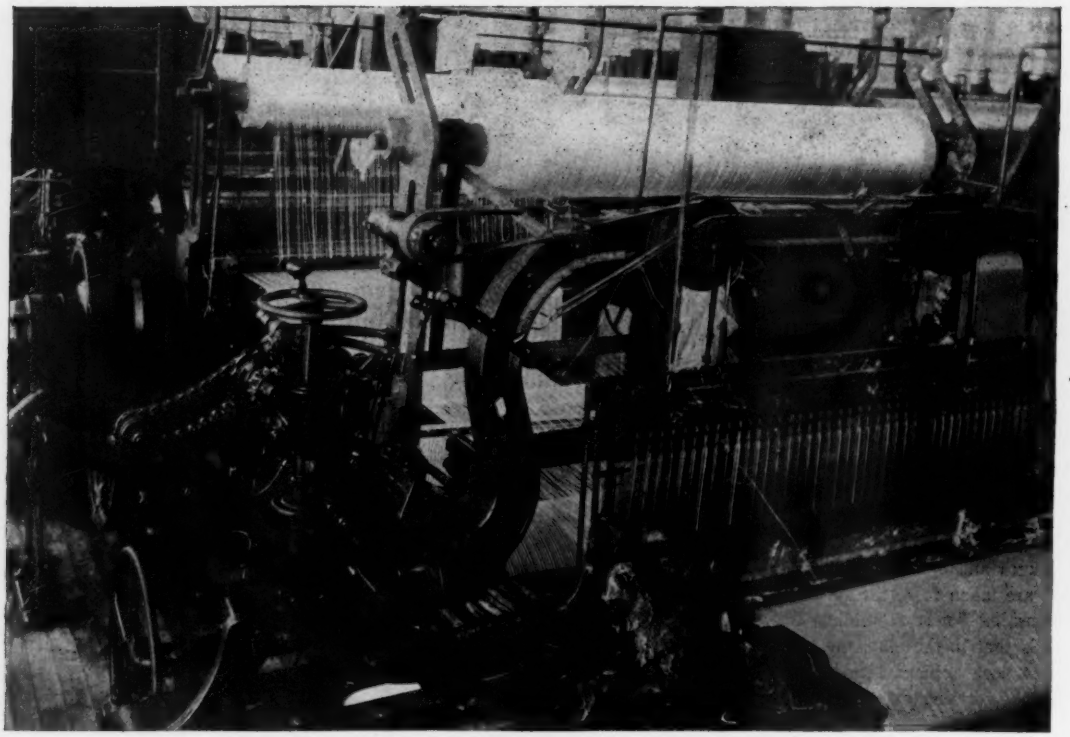
Again, will lumps or foreign matter cause the strand to break as it does in the drawing frame trumpet?

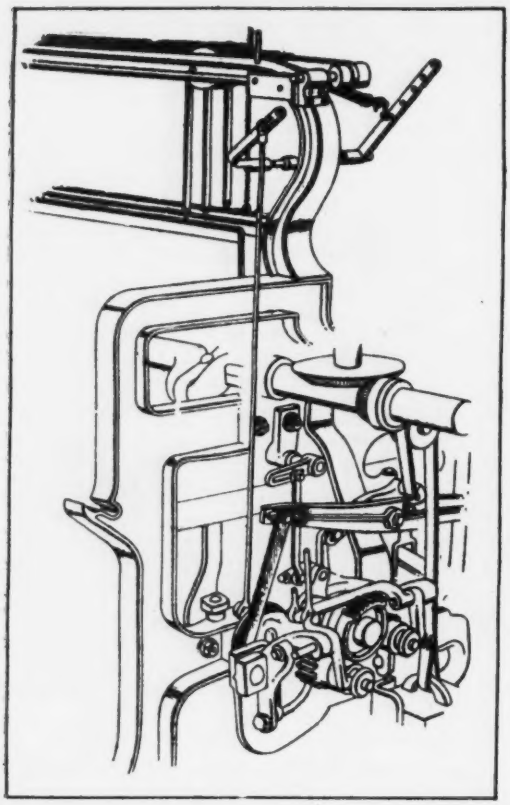
No practical carder will deny that all carding slivers vary; again, we know that after the card is stripped, we have a much lighter sliver. We also know that there is a great difference in sizing the drawing sliver from full cans at the back and nearly empty ones. And we know that drawing frame tenders will make faulty piecings that cause heavy and light places in the finished drawing. In fact, there are many defective places in the finished drawing sliver. That is why we double at every opportunity.

I am in a state of quandary in the matter. What I would like to know is this: (1) How can this new method of drafting eliminate the faulty places without doubling when making fine yarns? (2) In making yarn from low stock will the draft rod allow lumps to pass through?

I was told that there are over 2,000,000 spindles running in England on the foregoing system and that it is very successful. I say this is justice to the makers. The other method of drafting is by friction also, but instead of the draft rod there appears to be light leather aprons through which the strand passes. WASH (R. I.)

W. C. Taylor, who is well known in the textile field, has joined the Duplan Silk Corporation, and will travel the South, with headquarters in Johnston Building, Charlotte, N. C. H. H. Cannon continues in charge of the Charlotte office.





A Novel Harness Motion

Howard C. McKenna, of the Planters' and Merchants' Mills, Inc., New Braunfels, Texas, has invented a new kind of harness motion with which fancies can be woven on a two-harness loom, through the introduction of an extra harness. This application is illustrated in the accompanying photograph and line drawing, showing the principle applied to a four-box Crompton & Knowles automatic two-harness cam loom. Any desired weave may be secured, so long as it is a multiple of two, that is, 6/2, 4/4, 2/4, etc.

It will be noted that the extra harness introduced to weave the silk is operated by the box motion. In applying this motion, the connecting lever from the intermediate to the disc crank is removed, and the intermediate is fastened to the box motion frame by a brace. The disc crank is then used to operate the extra harness, the weave being built on the box chain. One or two shuttles may be operated in the usual manner, and, as stated, any desired weave in multiples of two may be made.

In order to change the loom back to a four-shuttle gingham motion, it is only required to remove the brace connecting the intermediate to the frame and put back the connecting lever connecting the intermediate with the disc crank.

At the Planters' and Merchants' Mill at New Braunfels, it is stated, 60 looms have been running in this manner successfully on day and night production for a year, and weavers operate twelve looms each. The simplicity of the application, it is pointed out, makes the cost of installation for the motion but a few dollars per loom. Patent is pending on this harness motion.

Drafting Roving.

EDITOR COTTON:

Glancing through the May issue of COTTON I noticed the question by "C. S. F. (Ala.)" on drafting roving, page 651 and wish to submit my views, hoping that other readers of COTTON will do the same.

Considering the question drafting from double roving, one roving being a hard frame bobbin and one a soft bobbin, it seems to me that before giving a definite opinion on the subject one should consider the probable causes for having such a condition of bobbins, as "C. S. F." states some speeders make hard bobbins and others soft bobbins. I should like to hear from some other readers as to their opinion and to why these conditions exist. My own opinion is that there must be something wrong in the speeder room where such conditions exist. A hard bobbin, since "C. S. F." states his twist is the same, might be the result of a difference in lay and tension combinations, having a close lay would result in a firmer bobbin, a tight tension would mean a firm bobbin. With the same twist for the same hank roving, but one frame actually sizing heavier than another could result in a harder bobbin. A difference in type of flyer used resulting in a heavier pressure at the "presser" or "paddle" would result in a harder bobbin. Doubtless there are other causes that others of COTTON's readers, especially "Wash (R. I.)" can bring to light.

Now if "C. S. F." will size the two rovings running in together and is certain that his twist is the same I cannot see why there should be any difference in the drafting at the spinning. On the other hand, if one roving is hard due to a heavier sizing and has the same twist as the other roving, it really has more twist in proportion to its actual size, then the two strands should not draft as readily as if both sizings are very nearly the same and the twist the same. It is the practice in some mills to run rovings of odd hanks together and clean up odd lots in yarn mills, but the result should not be as good as when two rovings of the same size are used.

I have seen where using self-weighted rolls on the middle and back top lines of the spinning frame, setting well under the staple, the work running well, that a set of heavy roving may come in from the card room and when creeled in with the other roving will result in "pulling through" the rolls. This is equivalent to an increase of the twist on a coarser hank, for the twist has not been changed, but if the sizing drops down one hank, one is getting a roving one hank heavier with the same twist as the other hank. It results also in a harder speeder bobbin.

I also believe that an increase in quality of stock, the twist remaining the same at the speeder, might result in a firmer bobbin, for this is apparently the same as an increase of twist for poorer stock.

The foregoing is my own opinion on the subject, and if "C. S. F." can give us the cause for his hard bobbins it might aid in the discussion.

Drafting is a drawing out process and is accomplished by the variation of speeds of two or more lines of rolls. Anything that tends to prevent the drawing out hinders proper drafting. If "C. S. F.'s" hard bobbin has no more twist, is not heavier or bulkier but sizes and twists the same as the soft bobbin then why should it have any effect on the drafting?

I hope "Wash (R. I.)" and also "C. C. (N. J.)," who replied in the May issue of COTTON to "Spinning Questions" will also respond to the inquiry of "C. S. F. (Ala.)"

BERT (R. I.)

EDITOR COTTON:

In the May issue of COTTON "C. S. F. (Ala.)" wants to know if there would be any difference in drafting roving on a spinning frame when drawn from a hard or a soft bobbin from the speeders. My answer is yes. However, assuming both rovings having the same twist per inch, the difference would be slight.

There are many reasons for the cause of a soft or hard bobbin on fly frames. However, the most common are, the space between the first and second drawing roll. The closer the setting, the more resistance is offered to the front roll and a slightly tighter tension is the result. The construction of the flyer may be the cause. Some flyers have more angle in the hollow leg than others.

The speed of the frame is generally the cause. However, leaving the twist out of the question, when a bobbin is hard it is due to the pressure of the paddle on the surface of the bobbin. Now if "C. S. F." will take the trouble to closely examine any presser paddle of any up-to-date flyer, he will find a groove or small channel near the eye of the paddle under which the strand is drawn. Now, lay the pad on the surface of the bobbin lightly, and if the end of the paddle rests on the surface of the bobbin as it should, the strand will still have freedom in the groove. On the other hand, if you press slightly on the pad, you will find that the strand is held at that point.

Therefore, when you have a hard bobbin the strand contains more twist than a soft one. To make my point clear, let us assume that the strand is held as firmly at the surface of the bobbin as it is at the drawing rolls. In such a case, we would always have the figured twist. Twist escapes from under the presser pad at all times, but of course, the more the pressure at the termination of the presser pad, the smaller the amount of twist that escapes.

I would advise "C. S. F." when running a hard and soft bobbin, if his drawing rolls are set for running the soft bobbins, to spread the front and second rolls another sixteenth.

WASH (R. I.)

The Advantage of Vacations.

EDITOR COTTON:

I was amused over the picture of "Old Timer" in the September issue of COTTON, which showed him on his vacation trip. I could just picture him as he anticipated this vacation trip and the unusual things which happened to him which he had not thought of when he started out. However, such things are all in the game played by the tourist, and the roadside garages are looking for just such customers and reaping a very good harvest therefrom. But it seems that "Old Timer's" nerve was still with him as he contemplated making the necessary repairs which it would take to put him over on his journey, regardless of the radiator leaks or his batteries overflowing and the acid leaking out, showing how the spirit of confidence will pop up in a man who has made the practice of planning his own salvation through the difficulties of life's struggles in the mill. There are so many times when such things happen to us and when we cannot wait to consult with and get the advice of those higher up, but must act on our own

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initiative. Such a man is "Old Timer." However, out of the worst experiences of life there is always something to be gained, and we can learn valuable lessons from the experiences of others. It takes nerve and initiative to work out one's own salvation.

As to what he is saying, of course that does not concern us greatly. In a measure, we have an idea as to what he might be thinking at this juncture. Also, we are led to believe that there is someone else with him on this journey from the looks of the baggage in the "flivver"; if so, why is it that this person is not a visible part of the scenery? It may be on account of the quality of the language, though their friendship should have been strong enough to have withstood the vicissitudes in the flivver game and the flow of language resulting therefrom.

But getting back to the point which I had in mind when I started this letter, namely, when a man gets away from his struggles in the textile game he can look back on it, seeing things in a different light from that which he saw when he was in the midst of it all. Most of us could get vacations from our work and experience a sense of recreation, but we do not always realize this until it is too late. It is all a matter of system, anyway. If it is understood that the carder, or any other member of the overseer's bunch is to be off at a certain time it will be okeh It is planned for. Of course there are a good many novelty yarn mills where it is more difficult to get time off than it is in the plain cloth mills, but this can be "doped" out, and should be done for the overseer, for it is a hard grind, day in and day out, with him; the same thing nearly all the time. The overseers being worked overtime results in dull minds for days at a time. Under such conditions it is only a waste of time looking for improvement. It is a peculiar thing, but in order to see what should or should not have been done it is sometimes necessary for one to get on the other side of the fence. A vacation is a great thing if it is used for this purpose. The advantages to be gained from normal enjoyment and recreation of the human mind are countless.

Contributor No. 14.

Roving Twist and Humidity.

Editor Cotton:

If "Contributor No. 3025" will have his roving changed from 1.75 h.k. to 1.65 h.k., using same twist for the heavier roving, I am sure that his trouble will be overcome and that it will break better on the longer draft than on the shorter draft.

I agree with his carder that weather has a lot to do with the good running of work. If you will notice, the work will be running best when the winds are from a certain direction. Please do not get the idea that I think bad weather is the cause of all bad running work, for I do not mean anything of the kind, however, I do claim that there is a time when weather conditions are ideal for the manufacture of cotton yarns.

I have found that when cards are running the best and fly frames are running bad that the spinning is running good.

S. C. M. (N. C.)

Editor Cotton:

I have just read the inquiry of "Contributor No. 3025" in the June issue of Cotton with reference to roving

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twist and weather, and in his case, I believe the position his carder takes is in error. If, as the carder says, the twist is the same as they have been putting in for the past twelve months, that mill must have the best equipment in the South for keeping the mill cool and moist, and regardless of what they have, the roving must have enough twist to pull the full bobbin in the spinning creels to prevent stretch and breaking back. In our mill, on 5.00-hank roving, 15/16-inch staple, we are putting in 140 times the square root of the roving, double roving in the creels, 30s yarn. He admits he has had one tooth more twist put in the roving and the work is running better. Some people are from Missouri and must be shown before they will believe. If he will get the carder to add two teeth more twist to one set of roving, place this in one frame, note the break backs and the ends coming down while running one set, probably this will open his eyes regarding the weather.

There are some things which must be watched. The steps in the creels must be free from dirt. All the steps, either glass, iron or porcelain, must be in good shape. The skewer points should be kept sharp and not allowed to extend too far through the creels. The roving rod should be half-way between the top and bottom of the speeder bobbins; otherwise he will have roving breaking back. This is only in case a double deck creel is used.

If all these points are looked after, it is up to the carder to make the roving run. The type of cotton he is running being of a low grade mixed staple, lots not even running, the twist in the roving must be watched carefully with each lot of cotton opened; otherwise there will be too much or not enough. Probably the superintendent might act as referee in the matter. If he suggests the extra twist, that would eliminate the position of the carder on the weather.

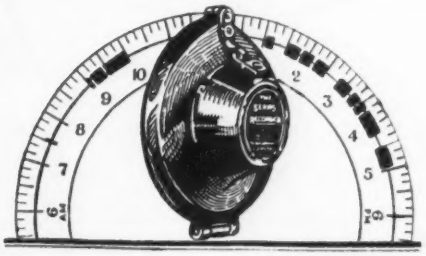
O. T. (N. C.)

EDITOR COTTON:

"Contributor No. 3025" asks about twist in roving and what it takes to put it through the spinning. There should always be enough twist in roving to pull off satisfactorily in the spinning, still there are lots of things that make it hard for the spinning. First, if the lay and twist is not correct then the roving will be stretched. Especially if the tension is incorrect the speeder tenders will take up on their racks and let off and consequently have stretched roving that certainly will cause bad spinning.

If the correct lay and tension is put on a frame it should run months at a time without taking up or changing the tension. In the present mill where I have charge the speeder tenders do not touch the tension, and we have run our speeders with as low as two ends down per doff for weeks at a time. I do not think that weather is such a vital thing in the running of the speeders as it is in the running of the spinning. If sufficient humidifiers are in the spinning room to keep the relative humidity at 65 per cent, spinning will run day in and day out as "good running work" if the proper grading of cotton is done.

Nothing contributes to bad running work more than bad cotton. I have been through this experience many times until now I do my own grading and stapling. We are running 33s and 44s on flat inch cotton which means 15/16-inch to 1-inch cotton. We never allow a 7/8-inch bale to go into the mix. Just a bale or so of 7/8-inch cotton raises havoc with the running of the work.



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tion" all the time by manipulation of his windows, his humidifiers and his heating or ventilating system.

For his further information, will state a little experience which I once had with my boss spinner. It was in the fall of the year and he came to me saying that his room was torn up. I noted the condition of the outside atmosphere and it was raining at the time. However, the outside temperature was only 68 degrees. I told the spinner that evidently he was too damp in his room. He replied, "Yes, I know it, but I can't help myself."

I then told him to go back in his room and open all the windows and doors he possibly could and, that I would go to the mechanic and have the large fans started up which were used for a heating system in the winter time, but of course would put no heat in the fans, just merely force the air into his spinning room to set up circulation.

The spinner replied, "Don't you see it is raining out doors and if I open more windows, I will let in more dampness?"

Then I asked the spinner to take his hygrometer and hang it on the outside of the window, and he would see that it was drier on the outside where it was raining than it was inside his room.

The explanation of this is that the temperature on the outside was only 68 degrees, while the temperature in his room was something above 80 degrees; I don't remember the exact degree, and as it takes temperature to hold humidity, the heat in the room caused by the friction of the machinery and the people, threw the temperature inside his room so much higher than the outside temperature that when I opened all his windows and started up the fans, I forced outside air inside his room and lowered the temperature in his room, which had the result of decreasing his grains of vapor to a cubic foot of air.

In about two hours the room was straightened up and running nicely.

By keeping a record of outside as well as inside conditions a man will soon learn to anticipate the weather. Outside atmosphere always begins to increase in grains of vapor to cubic feet of air when it is getting ready to rain. Sometimes you can tell two days in advance when there will be rain there or in close proximity to that particular place or section.

OLD TIMER.

EDITOR COTTON:

In reply to the inquiry of "Contributor No. 3025" as to his trouble in spinning, I am assuming that just as he states, his trouble is with the roving between the back roll on spinning frames and his creel.

I should say to "Contributor No. 3025" that on the assumption he has been making the 1.75 hank roving right along, for he states his carder claims he is twisting the roving the same as he has for the past months, that the trouble is a newly arisen trouble for up to this time he has been spinning his 11.50s from 1.75 hank single roving and his work has been running okeh.

I am assuming that this contributor has made *no other changes* in his organization, drafts, setting, speeds, waste run in, etc., but that everything remains the same, and his spinning is not running satisfactorily. What I want to impress upon "Contributor No. 3025" is that he must be sure *no changes have been made* and I'd like to ask him if his work has run okeh up to the present time or whether he has run into the difficulty before, in the warmer weather.

My opinion on the inquiry of "Contributor No. 3025,"

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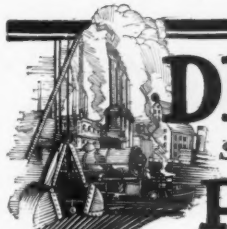

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on the basis of facts given in his letter, is that his stock is of a lower quality than previous lots, which means that he must have more twist in his roving until he has inserted enough twist so that roving will pull in the spinning creel to the rolls "without stretching or breaking back." (See my article on value of twist in roving.) He may have to insert one, two, or even three or four teeth of twist. Let this contributor watch his roving bobbins in the creel when the bobbins are nearly empty and see if these strands break back.

Furthermore, if perchance the stock is of a lower quality, as it seems to be, he may have to insert a tooth or two more twist in his spinning for good running. Another thing that he must watch is that the tensions on the speeders are not too tight so as to cause stretching of the roving, which may not break on the roving frames but will give trouble in the spinning. Also his roving sizings, so as not to get heavy and light roving, resulting in heavy and light yarn and probably undue breakage. Another point is that if "Contributor No. 3025" is running roving that he may have stored for a while, he will have trouble unless a tooth of twist was inserted in the roving previous to storing.

I can't agree with his carder on the weather conditions, for I understand this to be a continual trouble under present conditions. If it is an off and on trouble, weather conditions may affect the roving, as weather conditions can surely give considerable trouble, but I, myself, believe the cause to be with the stock.

If "Contributor No. 3025" will give his complete layout as to equipment, speeds, drafts, organizations, method of sizings, and all general details as far as possible regarding his plant, humidifier conditions, etc., purpose for which yarn is intended, etc., I shall be pleased to treat same as confidential and will send you my opinion as to his difficulty, which you may or may not publish as he may so desire, only trusting that he may reply to me through you as to whether he has benefited thereby. BERT (R. I.)

Why the Roving Runs Lighter

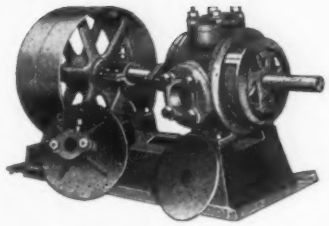
EDITOR COTTON:

Replying to the question of "T. R. F. (Ga.)" in the "How Other Men Manage" department of the June number of COTTON as to why it is when the rolls on fly frames are set to 1⅛-inch and then changed to shorter cotton, say ⅞ to 15/16-inch, that the roving will lighten up, will say:

I think the man who argues with him that the same amount comes out is right, but the trouble is that it does not come out in roving but comes out in fly and clearer waste. We know that short cotton even with the proper settings at every machine will lose more in fly and clearer waste than longer cotton and then with the roller settings at 1⅛-inches for ⅞-inch cotton, there will be more fly and more clearer waste due to the shorter fibers leaving the body of cotton before the rollers take hold.

With reference to the thick and thin places mentioned by "T. R. F.", no doubt but what there would be all kinds of unevenness in roving made from the settings and cotton he mentions, but I do not think that his theory is correct regarding the unevenness making the roving lighter. It would seem to me that the feed would be almost constant and would not affect the weights very much except it would probably cause a wider variation and would run as far to one extreme as the other light and heavy.

L. (N. C.)



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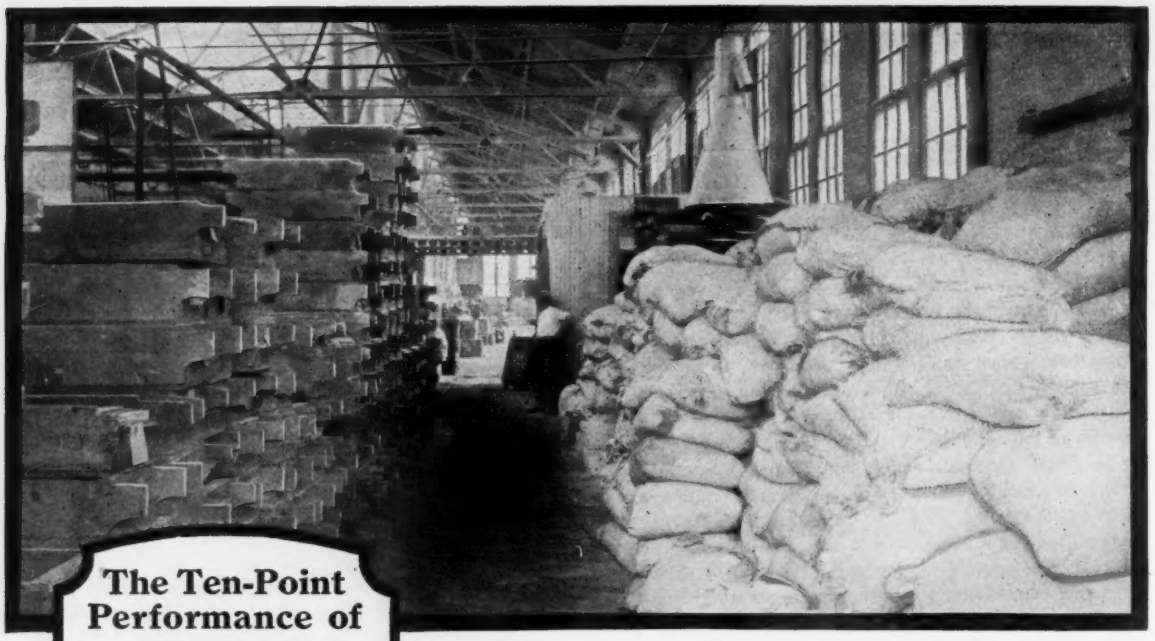

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Offers Advice to Weavers.

Editor Cotton:

I want to say that I do enjoy reading Cotton, but it would suit me better if there were more weaving articles in it. But, I suppose articles cannot appear in a magazine unless someone writes them to be published. (He's right.—Editor.)

I hope, therefore, that we weavers will wake up and get more along the weaving line for Cotton to publish. I am sure the editor would be glad to have the weavers who are readers of Cotton give or receive any information pertaining to weaving. (We certainly would.—Editor.)

I have just been reading, in May Cotton, the answer of "T. A. D." to "Pine Tree State." Not because I wrote the latter article, but I want to compliment him as to his fairness in handling it as he did. I think, myself, that he is quite human.

I have asked and received a lot of information on weaving through Cotton, and I will say that every question I have asked has received an answer that has been a great benefit to me in handling my department.

Now I would like to make a few comments in regard to the article of "C. C. (N. J.)" with reference to the care of belts. We all know that the more oil and other ingredients we put on belts the more waste they will collect. Then why not use a belt that requires no care at all? In the last three years I have tried out twelve or fifteen different kinds and makes of belts. That is, leather, canvas, and other kinds. Out of the whole of them I have got a leather belt that requires no care at all after being placed on the loom, only to take out the stretch.

I suppose if I gave the maker's name of this belt it would make this article an advertisement. It is a light double ply. The outside is an oak tan. The inside or pulley side is a chrome tan. I have been running these belts about two years and today they look as bright and new as the day they were put on the looms. They cost more than ordinary belt, but they are worth a lot more. They need no care at all, and water does not affect them. I am running about 82 per cent humidity in my weave room, and it has not affected them. This belting has no rivets or wire in it and so makes a perfect cone drive. We are using it in all of the departments. Pine Tree State.

The new plant of the Scandinavia Belting Company, at North Tryon and Keswick Ave., Charlotte, N. C., has been placed in full operation. The first unit of the factory buildings is 156x136 feet, brick and steel construction with saw-tooth roof. The company here does it twisting, quilling, weaving and the impregnation of its various products. Beltings and brake linings are manufactured, special looms in widths from 1-inch to 36-inches being installed. These looms are manufactured only in the English plant of the company, The British Belting & Asbestos, Ltd., Cleckheaton, Yorkshire, England. American spun coarse yarns are used in the company's products. The plant is electrically operated with power from the Southern Public Utilities Co., and is lighted with Cooper-Hewitt lights. A Carrier system of humidification is used. Besides Scandinavia belting for transmission and conveyor belts, the plant also manufactures Scandinavia brake lining, Scandibest brake lining and Cotela linings.

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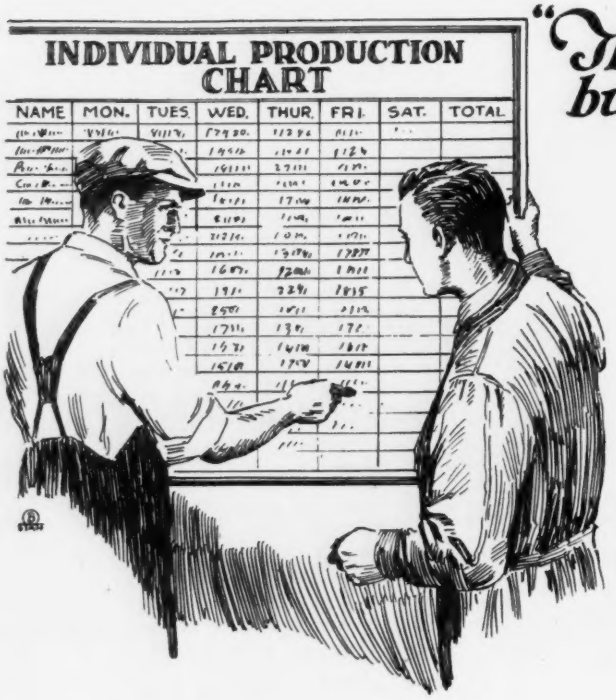

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SINCE 1915

The correct lay for 1.75 hank roving is 13 layers per inch on the bobbin.

If "Contributor No. 3025" is running low grade ¾-inch cotton it seems that he is making it hard to make any kind of numbers. From my experience he ought to have at least ⅞-inch staple, especially if the grade is low bringing 700 to 800 points under the market. Low grade cotton is not always the cheapest in running a mill. Good running work means higher efficiency and better quality upon which the mill builds its reputation or lack of reputation. Low grade, short staple cotton does not add anything either to good running work or to quality. O. P. Q. (N. C.)

EDITOR COTTON:

With reference to your enclosure from Contributor No. 3025, first, let me explain to him that if he had been an overseer of spinning, which I do not believe he has, from the wording of his letter, he would know that there are times when the work runs badly in the spinning room for a few days, and then runs well again all on the same roving.

In other words, roving which will run probably a week in the spinning frame will see two days of that time with the work running very badly, while for the other four days the work will run well.

There is really more to the carder's contention than this contributor really believes. However, it is a fact that when something is the matter with the work and nobody can actually explain it, we must have something to blame it on. Therefore, the weather is called to the rescue.

I note that he claims his carder says he is twisting his roving the same as he has been doing for the past twelve months; and for your contributor's information, wish to state that many mills on print cloth numbers have what they call summer twist and winter twist for their roving, realizing that it takes more twist in the summer to give the same results in the running of the work than it does in the winter.

May I suggest to your contributor that he start a record in the carding, spinning, and weaving departments of his mill as follows:

Place a hygrometer on the outside of the building. He can merely drive a nail up in the wall on the outside of a window and hang the hygrometer on it where it can be read from the inside. Then at the hygrometer he keeps on the inside of the room, place a blank book and go to this hygrometer four times per day, (I would suggest 7:00, 11:00, 3:00 and 5:00 o'clock), and set down the grains of vapor to a cubic foot of air on the inside of the room. Also record the grains of vapor to a cubic foot of air in the outside temperature by reading his outside hygrometer. By the side of these readings which he records in his book, let him insert information which will show how the work is running. I would suggest that he have good, fair and poor. In other words, let him say whether his work is running good, fair or poor at the time these readings were made.

He can, of course, determine this by either counting the looms stopped or by merely walking through the room and using his judgment.

After this record has been kept for a summer and a winter, then let him go over this record and pick out all the good running conditions and all the bad. He will soon be able to tell what conditions he should have in his mill for the best running work.

Then it will be his task to try to make the "good condi-

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A Kink for the Card Coiler Head.

EDITOR COTTON:

I happened in a mill the other day, and while going through the card room, I noticed something on the card coilers that was new to me. The mill has Saco-Pettee, 1903 Model, cards and, as is known, the coiler head trumpet tongue on these cards has a lip that is supposed to support it. Also there is another little lip that is supposed to rest on the bearing of the auxiliary calender roll bearing. These people had burned this off with a welding torch, and replaced it with a quarter-inch set-screw with a lock-nut on it. This gave an adjustable setting there, so to speak.

I asked the superintendent why he did this, and he said that the original lip became worn, and had no adjustment, and that when this occurred the card tenders would put chunks of cotton in the coiler cap to make the slivers run up and go in through the trumpets without bagging down and eventually breaking from the coiler head. With this adjustable set-screw and lock-nut arrangement, provision can be made for any wear, and the card tenders are compelled to doff the cans when they become full; whereas, beforehand, they would sometimes get so full that they would bulge out and the sliver would scatter over the floor.

The practical man will doubtless understand this proposition, but if not I would be glad to have anyone write for further information, and I think I might secure a sketch to illustrate it more clearly perhaps. T. A. D. (GA.)

A Solution of the Fly Frame Change Gear Problem.

EDITOR COTTON:

Up to this writing not one of the bobbin-lead defenders have answered the questions asked by "Wash (R. I.)" in the January number of COTTON, so I will submit the following:

I will take "Wash's" diagrams, using a 46-tooth twist gear, 468 r.p.m. main shaft and 32 teeth differential pinion:

$$\frac{468 \times 40 \times 6.5 \times 19 \times 32 \times 36}{39 \times 3.25 \times 60 \times 60 \times 124} = 48.11 \text{ r.p.m. of sun gear or wheel.}$$

$48.11 \times 2 = 96.22 + 468 = 564.22$ r.p.m. of sleeve gear.

$$\frac{564.22 \times 53 \times 44}{33 \times 23} = 1733.40 \text{ r.p.m. of bobbin at starting point.}$$

$$\frac{468 \times 53 \times 44}{33 \times 23} = 1437.33 \text{ r.p.m. of spindle.}$$

1,733.40 — 1,437.33 = 296.07 r.p.m. speed of the bobbin over the speed of the spindle.

$$\frac{468 \times 40 \times 71}{39 \times 130} = 242.43 \text{ r.p.m. of front roller.}$$

Then change the differential pinion from 32 to 26 teeth and we have:

$$\frac{468 \times 46 \times 6.5 \times 19 \times 20 \times 36}{30 \times 3.25 \times 60 \times 60 \times 124} = 29.40 \text{ r.p.m. of sun gear or wheel.}$$

$29.40 \times 2 = 38.80$.

$38.80 + 468 = 506.80$ r.p.m. of sleeve gear.

$$\frac{506.80 \times 53 \times 44}{33 \times 23} = 1557.12 \text{ r.p.m. of bobbin with a 20 tooth differential pinion.}$$

1,733.40 — 1,557.12 = 176.28 r.p.m. as the speed of the bobbin over the speed of the spindle, or less with 20 tooth differential pinion than with 32 tooth differential. Then

$$\frac{468 \times 46 \times 6.5 \times 19 \times 18 \times 20 \times 30 \times 16 \times 20 \times 33}{39 \times 3.25 \times 60 \times 40 \times 70 \times 30 \times 110 \times 60 \times 71} = .89 \text{ revolutions of lifter shaft per minute.}$$

The foregoing has a 40 tooth twist gear, 19 tooth bottom cone gear and 16 tooth lay gear.

After changing the bottom cone gear from 19 to 24 teeth the speed of the lifter shaft is

$$\frac{468 \times 40 \times 6.5 \times 24 \times 18 \times 20 \times 30 \times 16 \times 20 \times 33}{39 \times 3.25 \times 60 \times 40 \times 70 \times 30 \times 110 \times 60 \times 71} = 1.11 \text{ revolutions of lifter shaft per minute.}$$

With this change in the bottom cone gear both the speed of the lifter shaft and the speed of the bobbin changes, and after changing the bottom cone gear from 19 to 24 teeth, the speed of the sun gear or wheel is

$$\frac{468 \times 40 \times 6.5 \times 24 \times 20 \times 36}{39 \times 3.25 \times 60 \times 60 \times 124} = 37.16 \text{ r.p.m. of sun wheel.}$$

$37.16 \times 2 = 74.32$.

$468 + 74.32 = 542.32$ r.p.m. of sleeve gear.

$$\frac{542.32 \times 53 \times 44}{33 \times 23} = 1666.26 \text{ r.p.m. of bobbin.}$$

1,733.46 — 1666.26 = 67.14 r.p.m. of the bobbin less than before any change whatsoever was made.

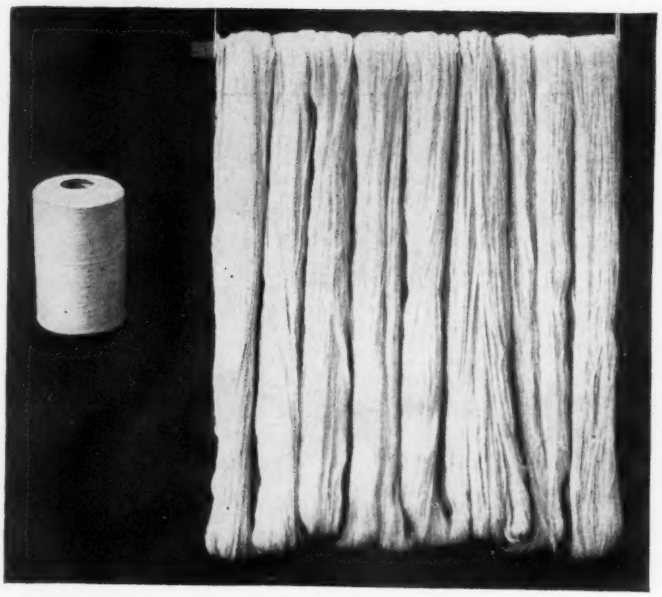
Now let's see. "Wash" has also changed the speed of his lifter shaft. 1.11 — .89 = .33 of a revolution of the lifter shaft more than before any change was made. "Wash" will now start his frame with the cone belt 3½-inches from the regular starting point. This must be done by moving the back bar towards the large end of the bottom cone. The stop motion not being readjusted will stop the frame when a little more than half full. This is not any way to change frames. All of COTTON's readers know that when the value of any train of gears is changed the proper change gears should be found to regulate and make the value of each train equal. It can be seen that "Wash" has changed the value of the bobbin train in his first change without changing the value of any other train of gearing. Then in his second change he changed the value in the bobbin train and the value of the lifting train.

If "Wash" had figured his laps per inch after changing and got the lay gear to lay the roving according to the speed of his bobbin, this difficulty should not have come. The twist and lay gears used in these calculations are intended only to show the difference in the value of each train of gears before and after the differential or compound and bottom cone gears are changed as stated by "Wash."

I have not tried to figure out the lift of the lifter rods, as I have never run a Saco Lowell fly frame and do not know what pitch the lifter nor the lifter gear is.

Just a short time past, a certain carder, and the best carder I have ever seen or read after, made the following change on a Howard & Bullough fly frame made in England in 1888.

He changed the slubber to intermediate. In this change



Which is easier to handle– Skein or Package?

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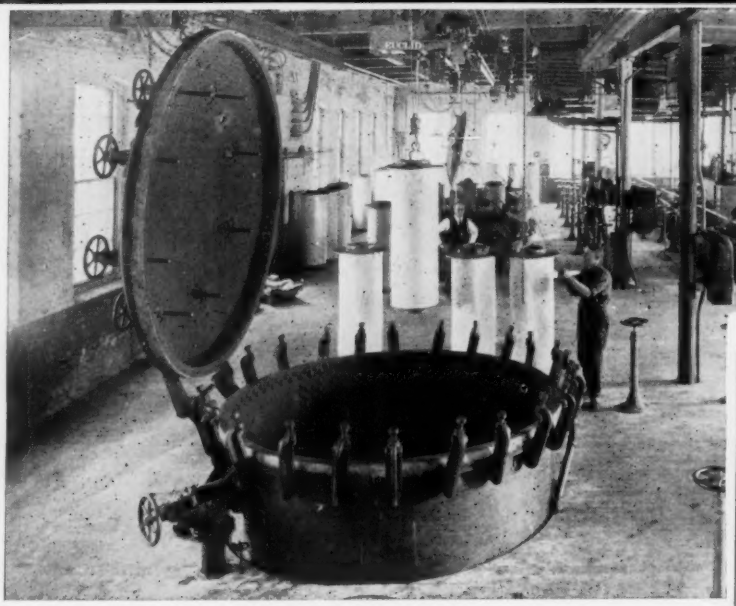

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he could not speed up the spindles, therefore the front roller speed was cut by changing the top cone gear. The proper lay gear could not be used, so the lay constant was changed by changing the bevel pinion driving the reverse gears. He did not have his cone belt to get a starting point, however, he changed the lay tensions, twist and draft gears. The frames then ran well, with no stretched roving.

T. A. A. (S. C.)

Answers "Wash's" Fly Frame Questions.

EDITOR COTTON:

Seems to me, after reading the letter "Wash" submitted in the January issue, it is somewhat a case of "breaking the windows of your own house." This letter, you know, was in answer to "G. D. S.," who said that by covering the cones, as suggested by "T. A. D.," he had overcome uneven tension on fly frames which ran tight at the start, then loose, then too tight about an hour before doff—this happening only in unfavorable weather.

"Wash" states: "From this letter we know now that favorable weather will remedy defective cones. This is great stuff."

If we are to believe what "Wash" wrote in a previous issue, on this same question from "G. D. S.," then the readers have learned something equally as interesting—that is, that favorable weather will also remedy defective gearing. Is this not also "great stuff?"

Did not "G. D. S." say his work ran fine during periods of favorable weather? Did not "Uncle Wash" also state that his frames had the wrong pitch (not the wrong number of teeth), but pitch, in certain trains of gearing? Does not this prove that good weather remedies defective gearing? How about it, "Uncle Wash?"

Remember how "Wash" stated in the same letter in reference to me that it was a case of the "blind leading the blind?" Remember?

Remember also, a little further down, where "Wash" says, quite modestly, "The writer is considered an expert?" Remember?

There are two things I must admit and one thing I must prove—I must admit that I am not an expert, and probably never will be; I must also admit that "Wash" is an expert. Now I must prove that I am not blind, otherwise I shall have to spend the rest of my days behind a sign and a tin cup.

To begin with, I am not blind to the one "Wash" pulled about the poker bar, etc., although I did not mention it before.

Neither am I blind to the foolish and utterly impracticle question "Wash" submits in the January issue, on page 284.

He states: "We change the change gear marked CH from 32 to 20 teeth. This change brings the cone belt at the extreme end of the bottom cone at the start of the set. With this change we find that the tension is slack, and must be tightened about every fourth layer until the cone belt is at a point, say about four inches from the starting point. To overcome this, we change the bottom cone gear from 19 to 24 teeth, which allows the cone belt to start about 3 1/2 inches from the end of the bottom cone and overcome the slackness mentioned at the start of the set. However, at the finish of the set, we find we have only a very small bobbin. Slightly over one-half set. The taper increased about one-half. Now, what caused the foregoing?

"Remember, the rack lay or taper gears are not changed.

"The frame is a Saco-Lowell fly frame. Change as stated and you get the results mentioned.

"What causes the increased taper and smallness of the bobbin?

"If the defenders of the bobbin lead can't explain, just let them ask Uncle Wash, and I'll do it, without using the word 'parabolic.'"

Do you get the idea of just what "Uncle Wash" did? He conducted an experiment, which probably took him several hours, and all he got out of it was a lot of information that is no good to anybody, and a set of spoiled roving.

Well, I guess "Uncle Wash" won't have to trouble himself to explain how it all happened, as I happen to be one of the "defenders" of the bobbin-lead system, so I'm going to tell you just how it all came about:

As the bottom cone gear is a driver, and the gear was changed from 19 to 24 teeth, this drives the shaft faster that runs to the twin gears. This caused the twin gears to speed up, which would naturally result in greater speed to the rail, causing less lays per inch to be laid on the bobbins.

Reducing the lays per inch allows each separate layer of roving to drop down more closely into the preceding layer. This cannot help but produce a smaller bobbin.

Now, as the total number of layers on the smaller bobbin equalled the number on the full-size bobbin, the taper would be greater on the smaller bobbin, due to the fact that the traverse remained the same.

I should not have taken this time answering a lot of his questions had not "Wash" promised to bury the hatchet if some of the "defenders would answer his question. It is my sincere hope that I have proved to him that I understand the "fundamental principles underlying the successful operation of the fly frame" and also that I am not quite as blind as he would have the readers believe. Furthermore, if trick experiments constitute the "successful operation of a fly frame" I would just as soon remain "blind."

C. C. (N. J.).

Figures for Army Duck.

EDITOR COTTON:

I will give my method of figuring the reed, number of warp and filling, etc., on a piece of army duck, to be 30 inches wide; weight, 12.4 ounces per yard; 47½ sley × 30 pick filling per inch—in answer to the question of "E. T. (Ga.)" in the April issue of COTTON.

To find the reed for cloth of a given sley, subtract one from the sley and divide the remainder by the number of ends to be drawn in a dent, and multiply the total by .95. This will give the number of dents per inch that should be in the reed. I presume that "E. T." draws 2 ends per dent. If so:

47.5 — 1 = 46.5

46.5 ÷ 2 = 23.25

23.25 × .95 = 22.0875 or 22 dent reed.

To find the numbers of yarn required to make cloth of a given width and weight, of a given sley and picks per inch, add the sley and picks per inch together and multiply the result by the width of the cloth, and by the yards per pound, and—if no size is to be used on the warp—divide

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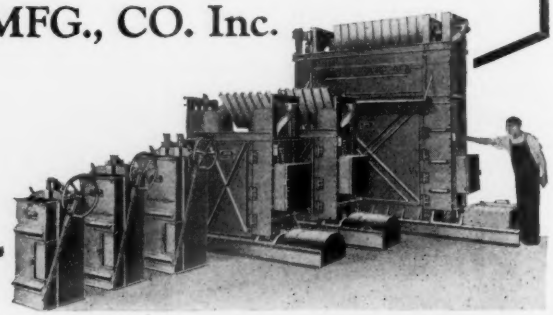

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by 840, and this will give the average yarn number to be used.

To find the shrinkage of the warp, multiply the picks per inch by 3 and divide by the average number of yarn, which will give the shrinkage. Thus:

$47.5 + 30 = 77.5$

$77.5 \times 30 = 2325$

2325×1.29 (yards per pound) $= 2999.250$

$2999.250 \div 840 = 3.57$s (average number of yarn without shrinkage). Add shrinkage to this:

$30 \times 3 = 90.$

$90 \div 3.57 = .25$ (shrinkage)

$.25 + 3.57 = 3.88$s (number of warp yarn), while the filling yarn should be 3.57s.

If size is applied to the warp, this should be considered in the same manner as that in which the shrinkage is taken care of. I think this will give "E. T." a 30-inch, 12.4-ounce duck.

CONTRIBUTOR NO. 6644.

Licker-in Grinding.

EDITOR COTTON:

The interesting letter in the March issue of COTTON in which "B. A. B. (N. C.)" describes licker-in grinding by means of a sand-box was news to me regarding methods used in this most important operation in card grinding. Of course, I have used similar antiquated methods myself in a case where at least "something must be done" and when a newly clothed licker-in was unobtainable and the only means of obtaining something like a point on the licker-in teeth was the use of a common brick applied while the licker-in was in motion reverse to "running way," but I must admit this is no way of grinding a licker-in, no more than is the sand box idea of "B. A. B.," though they may be useful when there are no other means handy.

Our friend "B. A. B." wants to hear from some older fellows on this subject, and I for one, will oblige him and give my ideas and impressions regarding the grinding of shall I say the most neglected organ of the carding engine. This has been my experience, that while all the other carding organs, namely cylinders, doffers, top flats and rollers and clearers have been in most cases subject to careful attention, the licker-in often escapes even an inspection for bent teeth, or the removal of sticks, tacks or any other hard substances.

It is astonishing to find how many men who profess to know, really understand the importance of routine inspection and grinding of lickers-in, but instead, they treat the latter as a minor detail in the carding process.

Such a wrong presumption is to be keenly depreciated, as the licker-in determines to a very large extent, the evenness, cleanliness and the strength of the delivered sliver.

A perfectly ground and trued up licker-in set properly to the feed plate or rolls and the main cylinder will perform all the aforementioned, but on the other hand, irregular lickers-in will not only cause bad work, but also damage to the clylinder clothing on account of bent or missing teeth.

When a licker-in is in good shape, that is, replete with regular lines or sharp teeth—so sharp that just a slight touch with the fingers would cut them—the cotton fiber is bound to be taken from the lap in a detached form and presented to the cylinder evenly, but it is an unquestionable

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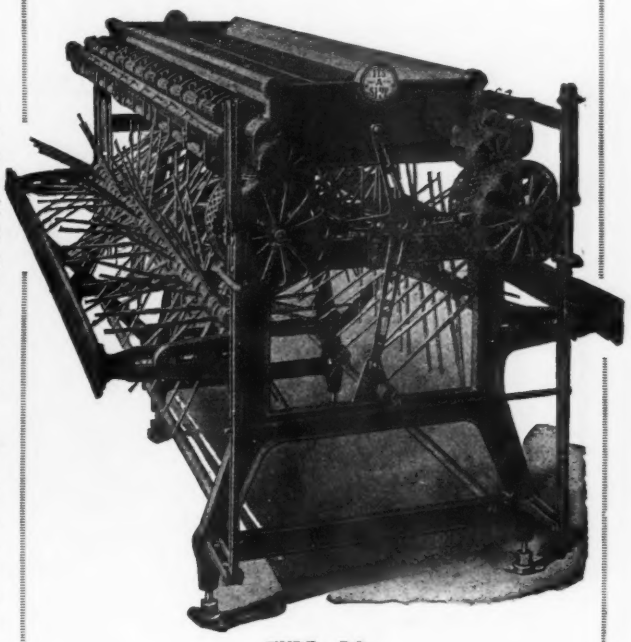

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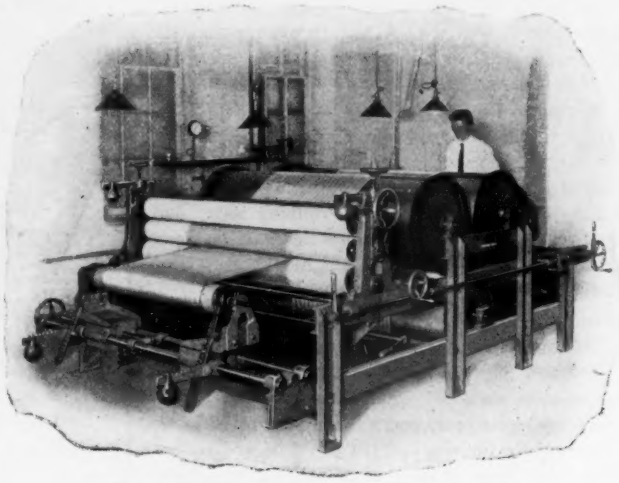

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fact that from the time a new licker-in is installed it certainly gradually loses its cleaning powers. This loss arises mainly (1) through bent teeth caused by the passage of pieces of leather, wood, nails, tacks, etc., and sometimes bale iron has been known to reach it; (2) blunt points of teeth and their irregular surface, which is caused by wear and abrasion by sand, broken seed, etc.

How to regain this cleaning value of lickers-in calls for a regular routine of inspection, and furthermore, the necessary tool for replenishing the whole of the saw-toothed surface with the full percentage of cleaning value, and the latter cannot be attained by use of a sand-box or brick held on the licker-in, though as said before, those ideas come in handy when a fellow has to "get by," but the only real and proper way to grind licker-in teeth is by using the correct tool, which is in the form of a licker-in grinding and dressing machine, which by the way has been on the market and in use for several years and to my mind ought to have a place in any decent carding department. Of course to perform the grinding operation the licker-in is taken from the card and placed in suitable bearings, which are adjustable, and by the aid of a special plough dressing tool on one side, which is adjustable and the traverse grinding roll on the other side, the operation is simple, nevertheless satisfactory in every respect, as there is little beyond ordinary skill needed to operate the machine. I am sure all practical carders need no convincing regarding sharp licker-in teeth, and they will easily recognize the value of the use of the proper means and abolish all those antiquated methods of years ago.

Referring to the dressing tool of the machine, I may mention that this consists of a number of hardened steel blades or ploughs which are made to fit the spaces between the wire setting. This too is operated by means of the rotation of the licker-in running backwards, which automatically conducts the tool along the rows of teeth for the full length of the licker-in. All bent teeth coming in contact with the ploughs are forced into a vertical position.

After this dressing the grinding of the teeth is easily performed by a patent traverse wheel grinder which belongs to the machine and which is set by a single setting wheel in the center of the machine. The grinder is covered with special emery fillet, which of course can be replaced when worn.

Having "said my piece" regarding this matter, I hope I have obliged our friend "B. A. B." and any others who may be interested, but suffice to say, that though the only proper means of replenishing lickers-in is at hand, it is surprising how many large carding sections are without it, and those in charge have to depend on the old ideas of straightening the teeth with a screw-driver and grinding with sand-boxes or bricks, and in the end they are spoiled before their time and reclothing is necessary. Whereas, equipped with the proper tool, the inconvenience of sending away and the cost of upkeep is bound to be lessened.

Rex (R. I.)

American Casablancas Corporation have opened a southern office and exhibit room at the Poinsett Hotel Plaza, West Court Street, Greenville, S. C. The Casablancas system of long draft spinning is maintained in operation, spinning yarns with a draft of from 20 to 25, using single roving.

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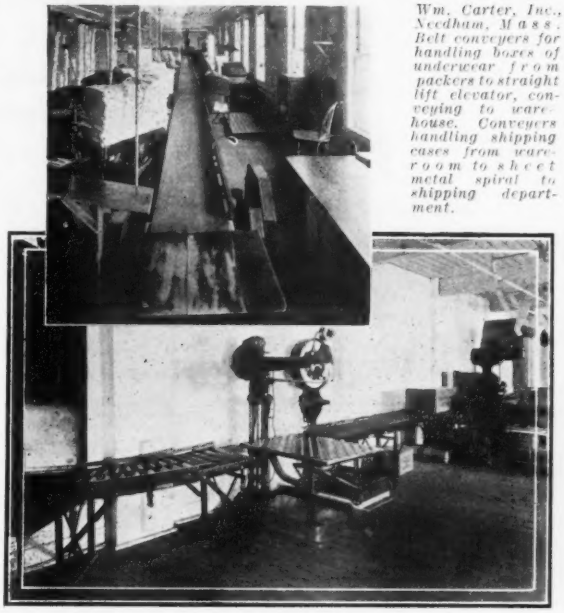

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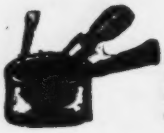

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Drawing Frames.

Editor Cotton:

Will you allow me to make a few remarks on drawing frames in cotton mills?

Owing possibly to its comparatively simple construction, the drawing frame has never received much notice, and when one considers that the drawing frame of today remains structurally, and in its operation, what it has been for over a hundred years, by all accounts, one wonders how it comes about that so long a period can have elapsed with so many thousands of engineers and clever men employed in the cotton trade and so little development has taken place.

Take for example the drawing frame of a hundred years ago. According to the records there was as much doublings of slivers as was thought necessary at this process, and the parallelization of fibers by the gradually increased speeds of successive pairs of draft rollers and equalization of the sliver, counts and thickness by the doubling process were attained as fully as was then required.

The improved roller arrangement known as the single preventer are rollers, either one pair or one top and two bottom rollers, fitted at the back or feed part of the machine and doing the actual lifting of the cotton slivers from the back cans. Something like forty years ago these rollers were hardly in use at all, and soon after their introduction the term single preventer rollers was applied, because they helped to give more prompt and effective action to the spoon stop motion by holding the slivers more firmly down on the spoons.

These leather or metallic rollers remain in practically the same state as when perfected by Arkwright, as near as I can say about 1769. This shell roller is perhaps the only thing about the mill which has not been improved upon. The attempts to improve it have been many, in fact so many as to lead a large number of mill men to declare that the rollers are incapable of improvement.

The drawing frame materially helps in making the fibers of cotton parallel, and the more perfectly this is done the stronger will be the spun cotton yarn and the more luster the yarn will have. The drawing frame very greatly helps in producing a yarn of uniform counts. The process is not a costly one, since drawing frames are very productive machines. They do not give much trouble in working if they are well taken care of and do not require as high a degree of skill in the workers' hands as do some of the other more complicated machines.

The method of obtaining sufficiently uniform cotton slivers depends on the principle of doubling slivers together and then drafting them out to the original thickness by the use of drawing rollers. As a matter of fact, the method of making fibers parallel is also dependent upon the doubling and drawing of slivers, since we could not utilize sufficient draft for making the fibers parallel without repeated doubling or re-thickening of the cotton strands.

Some years ago I overheard a discussion on the uneven work done by metallic rolls on the drawing frames. In regard to this, allow me to say there is just as much uneven work done in cotton mills today with the present day leather rolls as there was with the metallic rolls the day I

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heard the debate. The writer can say from practical experience with both metallic and leather covered rolls, as many a man who has the management of drawing frames can say, that he can guarantee to work any hank drawing or any weight required from them, and give good results at the same time in drawing fibers parallel on the drawing frame. T. A. B. (MASS.)

Weak Yarn and Its Causes.

EDITOR COTTON:

I read "Wash's" letter in the August issue headed "A Cause for Weak Yarn," but I will not argue with him as to which makes the stronger yarn—bobbin-lead or flyer-lead fly frames. I worked on the flyer-lead for four years during the '90s, but at that time I was supposed to run the machinery and keep it in good shape and make good work, and so I did not get the information as to the strength of the yarn. To the best of my recollection the roving was smoother than with the bobbin-lead of today, and I did not hear so much about weak yarn; but maybe the "higher-ups" talked it over. Furthermore, we had railway heads with eveners, and more doublings during the processes. Now most of this has been discontinued and a shorter cut taken. The machinery has been changed to match the new processes, and we have to run it as it is put in the mill—right or wrong, it's none of our say-so. It's "the machinery is there; get the results." We are not so much to blame for the weaknesses of the machinery, provided we try to make stronger yarn. I would rather not keep flinging it at the mill owners that they are making a mistake in buying the bobbin-lead, or at the builders that they should not make them. If there's any wrangling to do, let them do it.

Speaking of buyers being hard to please, I don't see much difference from year to year. A little while back we had a complaint on the breaking strength of a certain piece of goods. This engendered a spirit throughout the plant for better yarn, and each department made an effort to do its bit. We were at the time waxing our spinning bands to get a more constant twist. Then we increased the doublings at the drawing frames from six ends to seven ends up at the back, and this gave us some more strength. There are so many places where the yarn can be weakened that it is difficult to list them, but here are a few: Evenness in the picking, piecing on all machines, even setting of the cards, proper draft, proper twist per inch, tensions on all frames, regular oiling, creeling at all frames, etc.

We have a very good method of mixing our cotton, opening two days' run ahead and drawing it by suction from the opening room. I installed a "Murray" cleaning and aerating machine, which helped lots. From this it goes to the breakers, where I have installed an automatic distributor for the breaker picker hoppers. We had some trouble with the distributor at first, but finally got it adjusted. We might have condemned the distributor had we not made these necessary changes. Now I don't say that the fly frame could be so easily adapted, but at the same time we can all do more regulating and adjusting minor details, and in educating the operatives that certain things can be done and improved on regardless of personal observation and time-worn opinions.

It has been stated in these columns before that ball bearings in the logger-heads, or head-blocks, on the pickers will do wonders in maintaining an even lap, as it eliminates the friction in the slip roll pin winding up the roll of cotton. Laps don't come out long and short, however; they are short, and those called "long" are the natural length. The short ones are caused by friction on the head block rollers, which does not allow the required surface speed to be made by the calender rolls. Thus it reduces or condenses the cotton in the lap, which in turn makes thick yarn. It is hard to discover for most men watch the finisher to ascertain if the laps are weighing right, and pass it up at that. But did you ever consider that this condensation of the lap does not change the average weights; if it were not put on a lap at all, but was allowed to run out on the floor, the delivery roll is delivering so many yards per minute, whether it is winding it up or going into a basket. If it is winding freely it can only take up what it has delivered to it, and there's no stretch.

The waste that goes back to the picker room from the carding and spinning should be scheduled so as to keep up with it from day to day. There will hardly ever be any split laps, which if made will cause weak yarn in spots—and yarn is no stronger than its weakest points.

One of the best ways to get rid of the roving waste—and, by the way, to have no cut roving in the spinning—is by the use of a roving waste machine. This reduced our roving waste in the spinning sixty per cent—where we had been making a thousand pounds a week, with the roving cleaner we cut it down to 400 pounds. This means less cut fibers going back into the work to make it weaker.

T. A. D. (GA.)

A modulating radiator valve of a new and unique design for one or two pipe low pressure steam, vapor and vacuum systems is announced by Jenkins Bros., 80 White Street, New York. It is a patented valve with the disc and seat in a vertical plane, which is a new feature.

This construction prevents foreign matter such as scale and core sand which falls from sections of cast iron radiators from lodging on the seat and hindering tight closing of the valve. Steam enters at top of the seat and condensation drains out of the bottom of the seat, which is an important advantage when the valve is used on a one-pipe low pressure system, because the flow of steam into the radiator is not retarded by the returning condensation. This design also eliminates gurgling, water-hammer, and shock. A spring holds a Jenkins composition disc against the seat.

The valve is made of high grade bronze, rough body, nickel plated all over, with polished and nickel plated indicator cap. It is furnished in ¾ inch size and the centre to end dimension conforms to the recommendations of the Heating and Piping Contractors National Association and the Manufacturers Standardization Society.

The Mills Co., Cleveland, Ohio, have recently acquired extensive plant properties, comprising ten and a half acres, on which are buildings containing over 50,000 square feet of floor space, which is given over to the manufacture of Mills metal industrial partitions, and also steel sash glazing, an announcement states. The company was organized in 1921, and has experienced a phenomenal development, beginning in March, 1921, with less than 5,000 square feet of floor space. At the present time the Mills products are distributed through 90 district representatives.

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***B-7 Machine**

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***Models B-6 and B-7**

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The vertical stripes can be located throughout the circumference of the stocking as desired, by the use of jacks under the needles to produce the vertical stripe of the width desired.

These machines will produce repeated horizontal stripe patterns of any design up to 48 courses, if two or more course width stripes are desired. Repeated patterns up to 24 courses can be made if single course stripes are incorporated in the pattern.

The vertical striping attachment on these machines is so arranged that when making plaids or checked patterns small squares can be inserted in the middle of the check or vertical stripe.

The above machines can be set up for either men's half hose or ladies' hose, if desired.

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New Designs on Flat Knitting Machines

BY WILLIAM DAVIS, M. A.

The fancy patterns evolved by the modern knitting machine have been responsible in a large measure for the increasing use made by those patterns for outer garments. The circular machine has been extended in patterning scope to produce a wide range of garments which are cut from the web, but there always remains a steady and increasing demand for the productions of what is termed the flat knitting machine. By this type it is possible to introduce just as much or as little of the patterning element as is required and rather more freedom of style is added to the garment as a result.

The name, hand machine, is somewhat of a misnomer as it leads one into believing that its products are evolved by a laborious hand operation. As a matter of fact the machine itself is lightly driven and its working does not

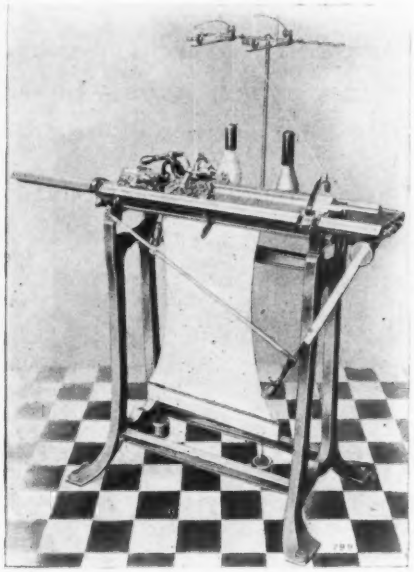

Fig. 1. A Flat Machine of the Dubied Type.

impose undue strain even on a woman operator. In some cases we introduce a belt if long stretches of uniform fabric have to be produced but it has been found that the advantage of such a procedure is often counterbalanced by the increase of press-offs which result, and when these happen with fancy patterns it often means that the whole piece has to be wasted. Fig. 1 gives a view of a typical flat knitting machine of the Dubied type and as its technical details have been explained by the writer in former issues of COTTON it will only be necessary to refer to important recent developments relating to the production of fancy fabrics on the machine.

This machine has already had in successful operation for a very long period a fully fledged Jacquard selective attachment which fulfills all that is expected of it in the way of giving designs in any color and form. For many users, the Jacquard presents great difficulties in card cutting and designing, especially in small firms with limited staffs and they have for a long time desired a style of machine for a limited range of fancy patterns such as are employed for basic sections of the trade. The first move in this direction was in the form of the "autostriper" where pattern discs are used having grooves cut to select certain needles by running along their butts or heels in the knitting bed. We had for example the one and one selection where this disc was cut so that every second needle was thrown up in knitting position while the others remained down.

On the same disc but in a different segment is a second selector, say 3 and 3, which meant that the needles were thrown up into knitting position in alternate threes and only those needles which are pushed up in this way will knit. A further selection may be the 5 and 5 arrangement where a similar result is achieved. In the plain stitch fabric one is limited to the number of patterns owing to the laborious method which has to be adopted to have one yarn on the back while the second yarn is showing on the face and in the flat knitting machine the chief advances in this kind of work have been made on the basis of the one and one rib. Here the patterning is done on one needle

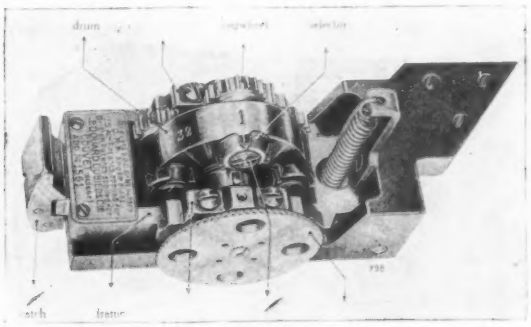

Fig. 2. A View of the Autostriping Attachment.

bed only, enabling the second bed to work straighttorward and conceal to a large extent the temporary dislocation of loops caused by the design.

In general such designs are worked in two color schemes, one color being inserted at the needles required and the stitches knocked over or discharged, while at a second course the needles left down in the previous course are now knitted with the second and contrasting color. This system contributes to making those designs models of clearness and definiteness for the knitted fabric. Suppose, for example, in a black and white contrasting pattern, the white thread is inserted into all the needles on the back bed, but only in alternate needles 1, 3, 5, etc., on the front bed, then at the second course a black thread would be inserted on the reverse needles, 2, 4, 6, etc., when the even needles would on this occasion knit and show black on the face at those points. In this way we can obtain on the face at any rate a completely clean pattern and while there is some irregularity at the back, it is not such as will interfere much with the solidity of the texture.

This style of pattern has been for a long period easily possible on the pure Jacquard attachment to the flat knitting machine, but the present styles can be obtained very much more simply and with greater rapidity on the new attachment termed the super autostriper. The normal Jac-

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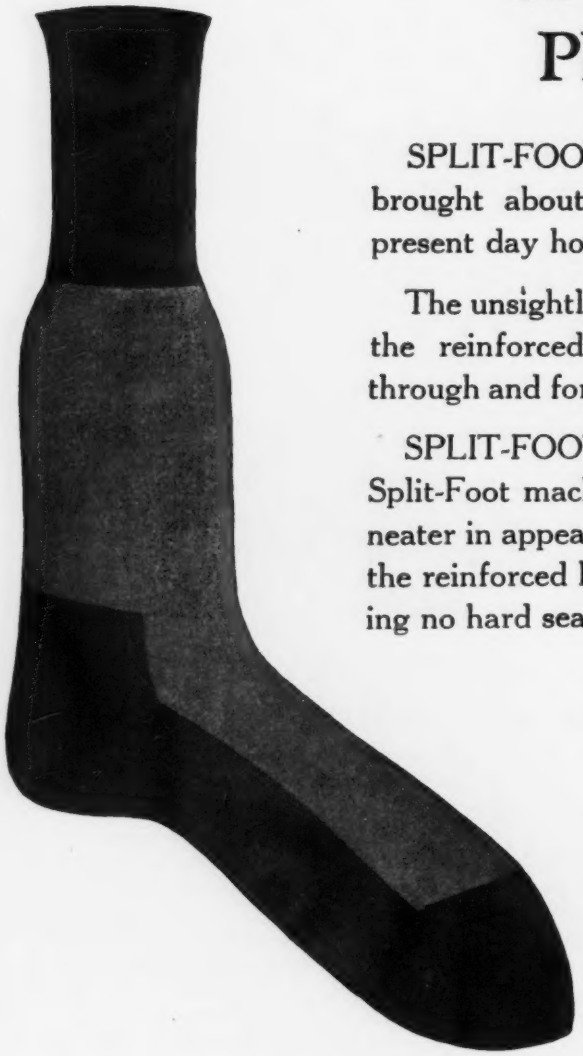

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quard flat knitting machine has to be specially built for the work and requires trained expertness, but the autostriper can be added to any ordinary type of flat knitting machine and being switched out of action when not required the machine can then be worked plain. Fig. 2 gives an illustration of the device which can thus be added as an aux-

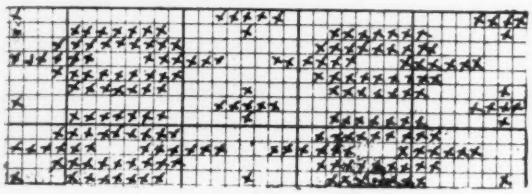


Fig. 3.

iliary to the flat knitting machine for the purpose mentioned. The part on the left represents the catch which brings the device into action in contact with the needle butts. The central point of interest is the drum marked J-32, on which various cuts of selectors are located, one and one, three and three and so on, each selector in the drum

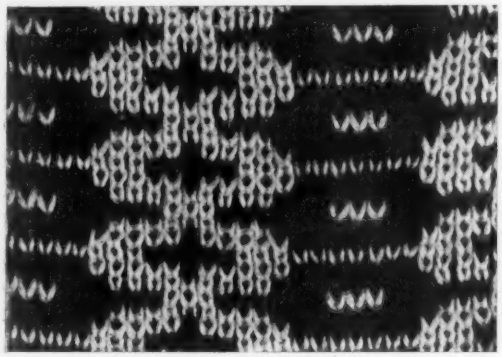


Fig. 4.

having its own number, that in view being marked one. Above is shown the cog wheel which allows the selectors to revolve during work. A glance at the selectors will show that their surfaces are cut to the same gauge as the needles of the machine and these gear with the needles as

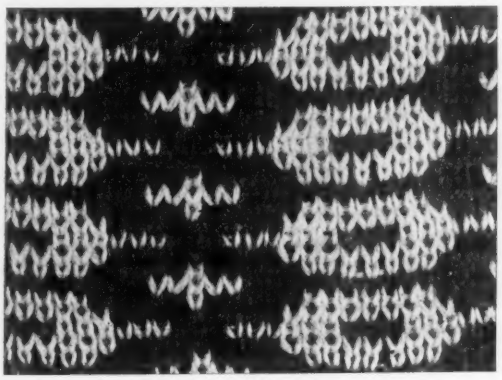


Fig. 5.

the frame traverses the needle butts. In so doing only those needles which are pushed up by the selector will knit and the others are allowed to remain where they are so that the yarn slips behind unkitted on the front but on the back they knit as usual.

The double feed of the yarn referred to above is required on the first form of autostriper, but in the device under consideration there is a cam attached which gives one row of stitches for every pull of the carriage as the two threads can be inserted at one draw, one thread taking the needles which have been thrown up, and the other by the agency of the connecting cam throwing up the needles which have been missed by the selector. This is a great advantage as it greatly increases production over existing selective methods of knitting machines. The principle of making such designs by means of this device may be shown by a few examples of fabrics worked on the flat knitting machine having seven needles per inch in one needle bed where the selector wheels are cut to meet the gauge. The designs shown are worked in two colors, white for the light color and blue as the dark element in the figures. The designs are given along with the fabrics, the squares represent needles when taken in the direction of the width, while in the length they represent courses. In these illustrations of designs on squared paper two courses are actually inserted in the machine for every single course shown on the point paper design and this gives the correct perspective to the figure by preventing it from showing dumpy in general appearance. Fig. 3 gives the point paper design and the style of the selectors chosen for the build of the figure are noted by scrutinizing succeeding courses.

The design is shown with two full repeats in width and length as this gives a clearer idea of its scope. In the width the figure repeats itself in 18 needles, while in the length it works out on apparently seven six courses, but this is in reality twice the number owing to the fact that each course is filled with two threads, one white and a second one in blue. To produce this figure, the selectors are taken in the required order, the individual arrangement of the various selectors being as follows:

(1) miss thirteen, knit five.
(2) miss five, knit one, miss five, knit seven.
(3) miss nine, knit nine.
(4) miss three, knit six, miss three, knit six.

With the use of those four selectors only, arranged in the drum or dise, the pattern shown is produced by bringing them round as required, but having them also taking their correct needles in relation to the preceding courses.

In knitting, therefore, the operator has to get into the sequence of the selectors to form the pattern and soon

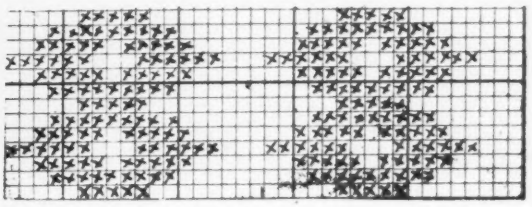
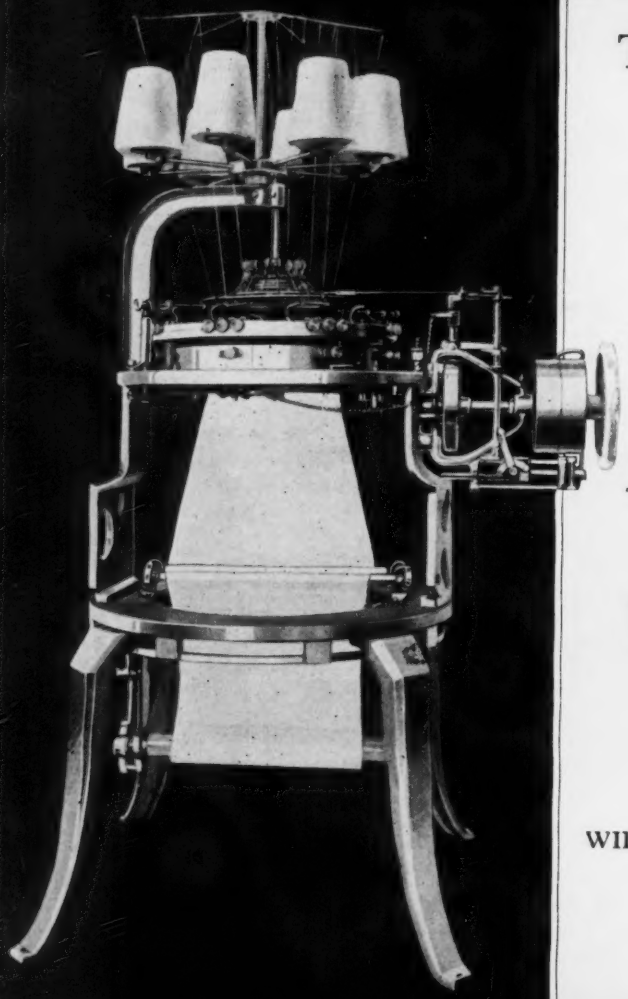


Fig. 6.

acquires considerable facility in composing the patterns. Fig. 5 is given to show that increased variation may be obtained on a similar number of selectors by the simple ruse of reversing the two colors and placing the blue in the white carrier and vice versa. The pattern arrangement is identical but the colors are transposed so that in Fig. 5 the cross appears in white on a dark ground. Provided that the designs are not completely reversible and do not



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have identical features which are the image of each other, different aspects of the same figure can be developed in this way by reversing the relative positions of the two ground colors.

Figure 6 gives a point paper design which may be regarded as an immediate extension of the system of the last two designs, where the reading of the pattern from top to bottom will reveal the following orders of selectors:

(1) miss thirteen, knit five.
(2) miss nine, knit nine.
(3) miss seven, knit five, miss one, knit five.
(4) miss three, knit six, miss three, knit six.

Again four selectors are used and comparing these set-outs with those used in fabrics Figs. 4 and 5, it will be seen that the same disc of selectors can be used to give a pattern

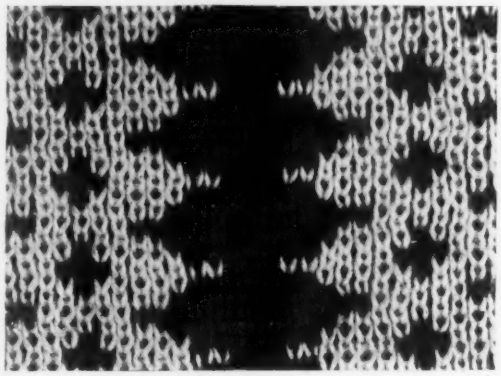

Fig. 7.

which is quite different in appearance. This shows that to secure success in this line of endeavor one requires to show originality in the use of the selectors obtained for the machine and that skillful use of them will enable a wide range of different effects to be produced. A good method is to work out in squared strips enlarged views of

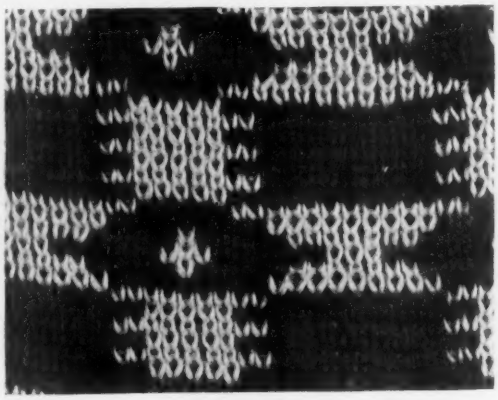

Fig. 8.

the arrangement of each selector and having a number of reproductions of each two or three repeats in width, move them into position in as many ways as possible in relation to each other. Careful permutation of the available orders of marks will yield an interesting range of patterns.

It is admitted that these designs are more or less geometrical but scrutiny of the figures exhibited in knitwear today shows that the great majority comprise the simpler forms which are sufficient to impart that touch of novelty which the wearer wants. As has been mentioned before, this is obtained at a moment's notice with very little reduction of production, compared with the usual Jacquard principles where sets of metal cards have to be previously cut.

Figure 8 is another example of the same principle where the use of repetition of two selectors is effectively shown in the large square which is a special feature of this pattern. A scrutiny of the selectors shows them again as follows:

(1) miss thirteen, knit five.
(2) miss nine, knit nine.
(3) miss seven, knit five, miss one, knit five.
(4) miss three, knit six, miss three, knit six.

This shows that the selector employed is identical with that used for the foregoing figures and designs and it must be admitted that they have a distinctly different appearance.

A new type of machine for dyeing hosiery has been developed and is being presented by the Klauder-Weldon Dyeing Machine Division of the H. W. Butterworth & Sons Company. Test machines of this type have been operating under the mill conditions for over a year, and the manufacturers state that they have demonstrated the efficiency, economy and speed in mind in their designing.

Particularly with the lighter, sheerer kinds of hosiery now in vogue, present- day methods of dyeing, it is pointed out, require a smooth cylinder, especially where dyeing is done without nets.

In the design of this machine, the manufacturers state, an endeavor is made to preclude such difficulties in the elimination of such defects. The construction of the new machine is simple and interesting. It is accomplished by flanging the various adjoining members outwardly for the double purpose of strengthening and stiffening the construction and so that they may be riveted on the other side of the cylinder to avoid exposure of rough edges of sheets, cast metal surfaces, or bolt or rivet heads inside the cylinder. The perforating is so planned, according to the manufacturers, that the goods will not be in contact with the perforated section at any time in the revolution of the cylinder when they may be damaged by reason of such contact.

In addition to the usual baffles on the inner wall, the cylinder is fitted with baffles located in the middle of the floor or flat section of the semi-cylindrical pockets or compartments. This is designed to prevent movement of the goods *en masse* and to provide a gentle opening up of the goods for quick and level dyeing. The mechanical action of these center baffles, covering a wide range, is determined by the height of the liquor level in the machine. The tub, which is of sheet metal construction, is mounted in iron side frames, and is constructed with welded joints. The tub, which is of sheet metal construction, is mounted in iron side frames, and is constructed with welded points. Provision is made to run the liquor, without increasing the capacity, at the higher levels to aid penetration and secure level dyeing by increasing the pressure of the liquor on the goods, and at the same time, it is stated, the goods being more inclined to float in the higher bath are carried up in such a way as to come in contact with the metal surfaces to a minimum extent. The drive is of the individual motor type incorporating an automatic reverse.

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A hosiery top as knit on the Universal (after stretching)

The same top as above (note the stretch)

Cutting Out the Ankle of Seamless Hose.

EDITOR COTTON:

I would appreciate any information which the readers of "Knitting Kinks" can give me with reference to cutting out the ankle of the seamless hosiery, and what methods are employed to do this. Anything the readers can furnish me on this subject will be appreciated.

A. C. (N. C.)

Selecting Thread Sizes.

EDITOR COTTON:

We wish to make an all-wool stocking on a circular knitting machine and want to know what number of woolen thread we should use on a 240-needle machine. Also we wish to state that we want them made entirely of wool, including the outside welt, heel and toe and inside welt; just the same as cotton is employed to reinforce the heel to a considerable height, also the toe and foot.

We would also appreciate knowing the number of woolen thread to use to make the same kind of stocking on a 220-needle machine.

We shall be glad to have the opinions of some of the readers of "Knitting Kinks," and in answering shall appreciate it if they will indicate the particular style of stocking to which they refer and the kind of machine they use in making it.

CONTRIBUTOR NO. 223.

Why the Ribber Needles Break at the Tips.

EDITOR COTTON:

I note that "Contributor No. 4427" is having trouble with his Brinton ribbers breaking the latch from the cylinder needles about half way of the spoon.

We have found this trouble to be caused from either a rough place on the yarn carrier, or from the yarn carrier being set too close, causing the points of the latches to hit it in closing. Also, we have learned that if the dogs are not properly adjusted that the cylinder needle latch, in closing, will hit the dial needle and break same.

B. E. L. (TENN.)

EDITOR COTTON:

I am giving you below some suggestions regarding the question of "Contributor No. 4427," about his trouble with ribbers breaking the tips off of the cylinder needles, as published in "Knitting Kinks."

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

I am inclined to believe that he is putting too heavy a strain on the latch. He may be doing this by getting too much of the tension on the cylinder needles, or he may have the dial cap set so the dial needles will pull too hard on the yarn while the cylinder needle is making the stitch. I would suggest that he go over the dial cap adjustment carefully and see that it is set so the dial needles will not draw on the yarn too heavily until the cylinder needle is through making the stitch.

The speed of the machine being too fast would make this trouble worse. CONTRIBUROR NO. 4429.

EDITOR COTTON:

I note that "Contributor No. 4427," who is having trouble with Brinton ribbers breaking the spoons, does not say at what speed he is running the ribbers, but judging from the size of his machines and the number of needles I should say he is driving them at too high a speed for good results.

I had considerable trouble of this nature on drop stitch work using long latch cylinder needles in conjunction with regular latch needles, and found that by reducing the size of the driving pulleys from 10 inches to 9 inches in diameter, the trouble was entirely eliminated.

It is a known fact that when needles are operated at too high speed there is a tendency to crystallize the hooks or latches of the needles, and naturally when this condition comes about the needle will break at the point of the greatest impact or strain, which is usually the spoon striking the hook as the latches close up. I would suggest that he slow down his machines, as the increased per cent of perfect production will more than offset the decrease in speed.

Also a roughened condition of the cylinder cams cause crystallized needles, with the same result of broken latches.

In making drop stitch work, using long and short latch needles, if the cast off cam that pulls down the drop stitch needles is too long it results in the long latches striking

the cylinder band wire which also has a tendency to break needles at the end of the spoon.

"Contributor No. 4427" should bear in mind that when he reduces the speed of his machines it would be well to renew the cylinder needles, as possibly a number of the needles are crystallized and would continue to break regardless of the decrease in speed, so it would be well to remove any risk of further trouble from that source.

I would be very glad to hear if this information should prove to be of any value to "Contributor No. 4427."

CONTRIBUTOR NO. 4430.

EDITOR COTTON:

Replying to your correspondent who is troubled with Brinton ribbers breaking the latch of the needle half way of the spoon, it is possible to break the latch spoons if the machines are what are termed "selvage welt" or "thread machines," as at one point the latch has an opportunity to come in contact with the cylinder spring band.

There are some cylinders which, when the spring band —usually used with selvage welt machines—is riding at its highest possible point and the cylinder needles are pulled down automatically by the cylinder stitch cam, then it is possible, if the machine in question is taking an extra long stitch, that the latch of the needle after clearing the stitch, being more or less free, can open up, so that the spoon of the latch is pointed downward as it travels to its lowest point. If the spoon should strike the spring band, which is on the cylinder in a horizontal position, and the needle in a vertical position, it is possible that the latch could go down and strike the spring band.

Another way the spoon might be broken is this: If the yarn carrier is adjusted so that the spoon of the latch when closing, instead of closing against the hook of the needle was closing against the heel of the yarn carrier. This of course would be a very easy adjustment as the one thing necessary would be to move the yarn carrier forward just a little bit.

There is just one other point, and that is that the wire latch opener, which is always used on a selvage welt machine, may not be set perfectly. Although this wire latch opener being out of adjustment would have a tendency to bend the needle latches rather than break the spoons I mention this as it might give this man a lead.

In looking over your correspondent's question, I note he mentions size 9 on a 340 needle machine. This would lead me to believe that these are not selvage welt machines, but the same instructions would cover this type of machine as he may be using a spring band, which in my estimation is not needed on this type of machine.

CONTRIBUTOR NO. 4431.

EDITOR COTTON:

I see in the June issue that "Contributor No. 4227" is having difficulty on Brinton ribbers with the needles breaking the tips off about half-way of the spoon. Perhaps the following suggestions may be useful to him in getting rid of this trouble, provided it is not in his needles but is due to some mechanical mis-adjustment on the machine.

See that the latches of the needles do not fall back on the loose course wire in making the loose course. If the needle latch hits the loose course wire it will have a tendency to break it.

See that the guide is set far enough ahead so that the cylinder latch needle will not close on the heel of the guide.

Also notice if there are any rough places on the point of the cylinder stitch cam. The needles should pull down smoothly without jerking, to prevent the needle latches from breaking.

I would be glad to know how this man comes out, and if he finds anything to stop his difficulty.

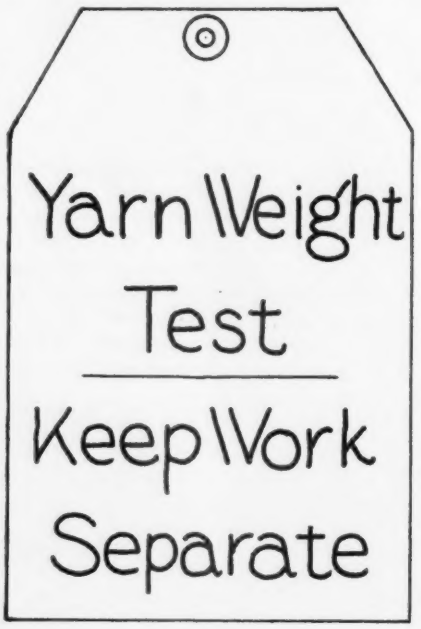
B. R. S. (GA.)

Checking Work in Process.

EDITOR COTTON:

At our mill we have a very simple but efficient way of reminding operatives to keep the work separate when making a yarn weight test, and I am passing it along to the readers of "Knitting Kinks" for whatever it may be worth to them.

When making a yarn weight test on one machine where an operator is operating a set of machines we used to have quite a bit of trouble getting them to check out right. Sometimes an operator would take a stocking from a machine on which a test was being made and put it with other



work or change the yarn. This of course would make the weight come out wrong and we would have to run it over again. To overcome this we had a number of tags printed as shown in the accompanying illustration. When we make a test we hang one on front of the machine so when the operator takes work from the machine it will remind her of what it is. We also mark the tops of each cone of yarn with chalk so it will not be changed without noticing it.

CONTRIBUTOR NO. 168.

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Combed																					
Lisle																					
Merc.																					

Rayon	A	B	C

A Production and Cost Summary.

EDITOR COTTON:

While a large portion of your "Knitting Kinks" each month is devoted to the mechanical side of the mill, you have published some interesting material describing forms, blanks and other systems, which have more of an appeal to the executive in the office, just as the technical matter interests the superintendents and foremen.

Inasmuch as I have seen nothing of this particular kind published, and thinking that it might interest other executives, I am sending you herewith a sample of a weekly report which is made to this office by our superintendent, showing the yarn on hand, the week's production, and the cost summary for a week's operation. It is almost self-explanatory. At the top are shown the dozens of ladies' hose, half-hose, rib tops, etc., knit during the week, and below these figures are shown the numbers of dozens looped or sewed, dyed, boarded, finished, and shipped. The percentage of white and black menders, and the percentage of seconds, also appears. Over to the right, the superintendent figures the cost of each of the operations, on the basis of cents per dozen, and the total shows us the average cost for the mill.

The lower portion of the form is devoted to the stock of yarn on hand, and this acts as a guide to our ordering department. The first line, "No. Yarn," carries the different yarn numbers we use; the next two lines are used for indicating the number of large and of small cases of each number, these items being placed on the dotted line directly underneath the number already listed. The remaining lines show the number of cases of double carded, combed, lisle, and mercerized, indicating the amount carried of each respective count by placing the number of cases underneath the respective yarn numbers. Since we use both single and ply yarns, the single yarn figures are placed at the left, and the ply numbers over to the right in this section, separated and suitably indicated.

At the bottom is shown the rayon yarn, in grades A, B, and C.

I hope this will be of interest to others in this line of business.

CONTRIBUTOR NO. 7194.

Spring Needle Vs. Latch Needle Machines.

EDITOR COTTON:

I noticed in a recent issue of COTTON a question from an underwear manufacturer regarding the comparative merits and advantages of the spring beard needle and latch needle machines for making a 10-cut, 12-pound union suit for men.

At the outset, let me say that my own preference, based upon experience, is for the latch needle machine. I grant you that a number of mills are attracted to using the spring needle because of the fact that this type of product has been extensively advertised upon a national scale by a large number of producers, and some may feel that this would be a talking point in selling that would be an advantage.

So far as the manufacturing end of the proposition is concerned, the two machines rest about on the same basis, insofar as, generally speaking, the cost of the equipment is about the same, and the production, and the cost of production, is about the same—although it is my own opinion that the latch needle would be in the lead on the latter point if a careful comparison were made.

The product turned out is just about the same, generally speaking, except, as your readers know, the product of the spring needle is the same on both sides of the fabric while the latch needle produces a fabric in which the wale on the inside is slightly smaller—and the latch-needle goods manufacturers turn the goods inside out to put this on the outside.

According to my experience, the spring needle machine is much harder to get started, and causes more trouble on changes. Also I think you will find that more feeds on

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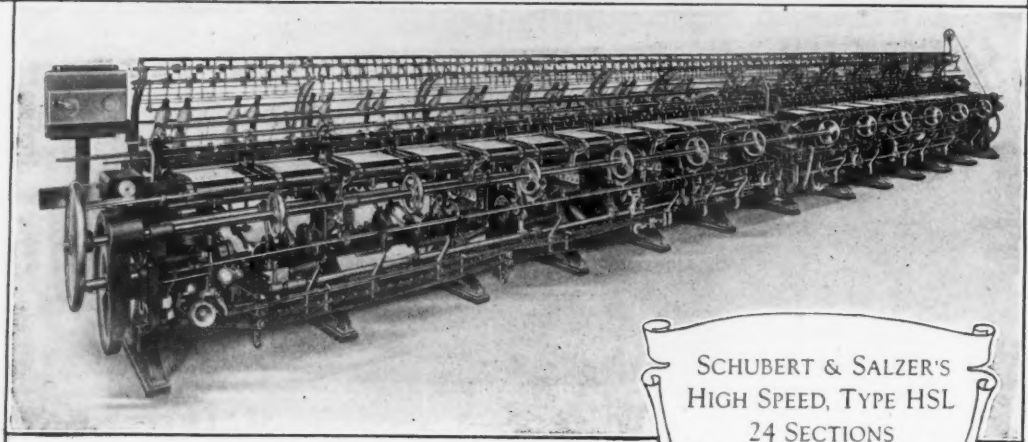

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the latch needle can be used. I run 12 feeds on a 20-inch latch needle machine.

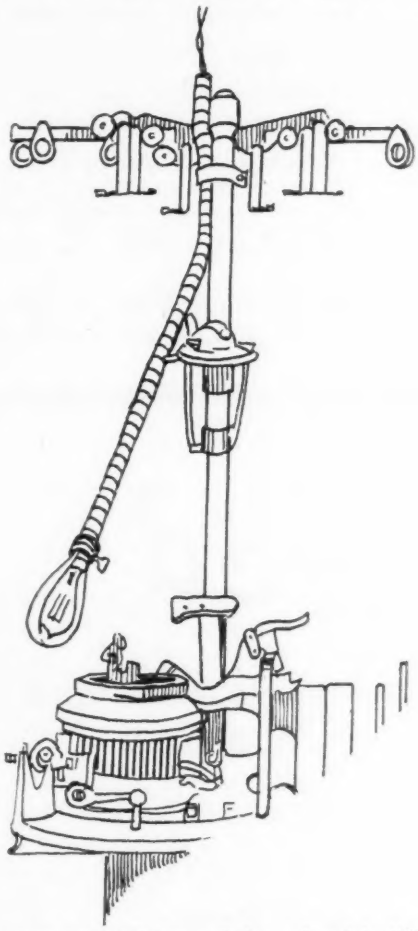
Years ago it might have been, on the coarse gauge, for instance, that the machines ran closer together, but there has been so much improvement in the latch needle itself that I think this is overcome.

CONTRIBUTOR NO. 2346.

A Handy Lighting Kink.

EDITOR COTTON:

As you know, most hosiery mills, when they were built, were manufacturing staple, plain hosiery, and the lighting arrangements were planned accordingly. In our case, however, style and market demands have required that we get into the extensive manufacture of fancy, novelty half-hose, and I suppose lots of other mills were affected in the same way. The result has been that in using the differently-



colored yarns, our knitters and fixers found it difficult to watch the work in the cylinders of the machines, because, while our lights are good enough for plain work, the colored yarns are more difficult to see.

To overcome this handicap, we have devised a little "kink" that has helped us very much, and I am passing it along to the readers of your knitting discussion department in the thought that it might solve the problem for those who are similarly situated.

What we did, as will be seen from the accompanying sketch, was to fasten a piece of cable to the yarn stand, and run a wire down from the ceiling to a 50-watt lamp, using an ordinary reflector, placed right at the cylinder. This enables the operator to watch out for drop-stitches and similar trouble, and also aids the fixer when he is working on the machine.

The cost of this "kink" is comparatively small, and, while I expected to have some of the globes broken, I have not had to replace one yet, and they have been in use for some time.

H. D. S. (TENN.).

Checking Production, Waste, Seconds, Etc.

EDITOR COTTON:

A number of months ago I saw in COTTON a daily report form sent in by a mill superintendent, showing production, number of needles used, waste, etc., for each operative.

At about that time we had started to work out a new

DAILY KNITTING REPORT

Date

Style No.

Lot No.

No. Machines in Section

No. Machines Not Operating

No. Needles Used

No. Transfers Used

No. Doz. Knitted

No. Doz. Sec.

Waste Lbs. Ozs.

Name of Knitter

Name of Fixer

FIG. 1

system for our own plant, and I found some of the features of this man's system useful in working out our own. We have developed our forms now to the point where they are giving us satisfaction, and in the spirit of exchange fostered by the "Knitting Kinks" department, I am sending these along to you.

The form shown in Fig. 1 is the daily report made out by each knitter on his or her work, giving the various information indicated thereon. These individual reports are collected, and transferred onto the two-weeks' record sheet which is shown in Fig. 2.

This sheet is made up in a size about 16 x 25 inches, which contains twelve of the blanks shown in Fig. 2, one for each operative, so that the number and size of the large sheet used would be determined by the size of the

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Date	Dozens Knitted	Seconds	Needles Used	Tranfrs. Used	Waste		Style No.
					Lbs.	Ozs.	
Totals							

Percentage, Seconds
Needles Per 100 Dozen
Transfers Per 100 Dozen
Waste Per 100 Dozen
Knitter
Fixer

FIG. 2

mill. (The original size of the blank in Fig. 2 is 4 inches wide; it being reduced to conform to column width.)

I think the knitting mill manager will understand the system without further explanation. This is a simple method of giving us a prompt, accurate comparative check on production, waste, seconds, and other points for each operative. C. N. (N. C.)

Cause of Dropped Stitches on the Looper Line.

EDITOR COTTON:

I note in April "Knitting Kinks" that a contributor is having trouble with Banner machines dropping stiches in the looper line. I have had some of this trouble, and have found that the most common cause is the switch cam. When it does not switch the needles down far enough, the first long needle will hit the front narrowing pick, knock it up a bit, and when it comes down it is likely to hit anywhere on the long needles, and of course at that time, if the needle is pushed down, the latch is closed; consequently the dropped stitch.

However, if this dropped stitch is on a short needle, I

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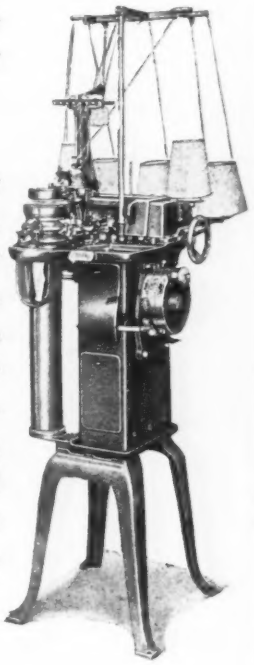

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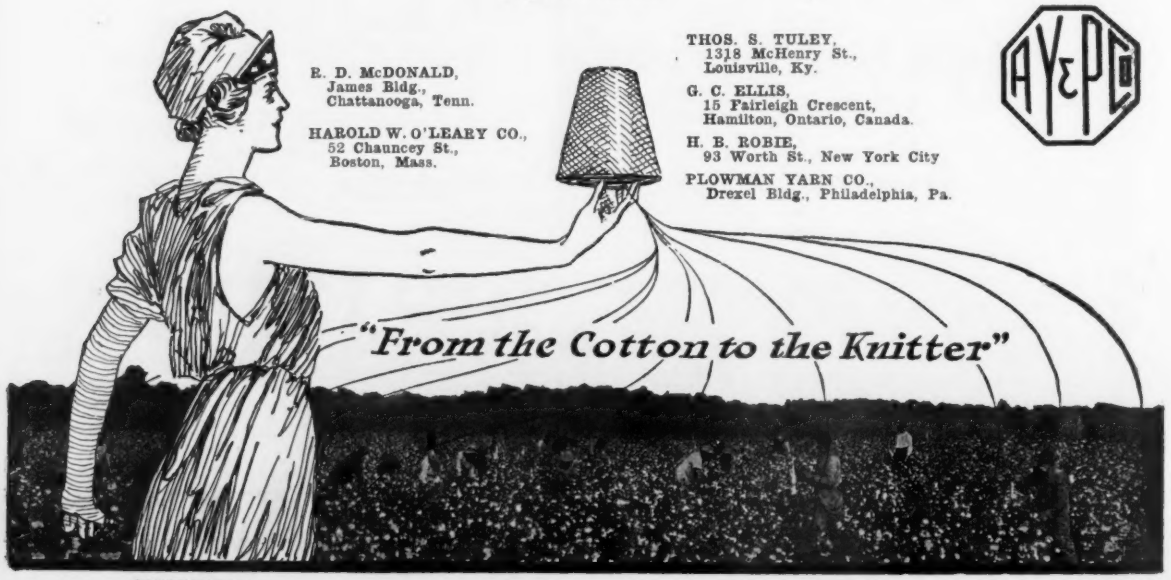

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would suggest that he look to see if the throat plate is setting squarely with the latch ring, or if the idle yarn fingers are too low, or if it is a bad needle.

Another thing that would cause these dropped stitches on the long needles is that sometimes there is a needle with a bent butt.

The switch cam before mentioned can be adjusted with the pin that operates this from the drum. Loosening the screw and pushing it down a little will switch the needles further down. T. W. S. (TENN.)

Cut Stitches on the Loopers.

EDITOR COTTON:

I suppose that if we could eliminate cut stitches at the looper we would be in the same class with the man who could invent a circular knitting machine that would automatically close the toe. Some day somebody may do that, *maybe*. The world do move, and the thing that seems impossible today becomes simple tomorrow.

But until somebody does that, we are going to keep on using loopers, and making cut stitches. You have published a number of letters about how to prevent this, and you would have to have a lot more, I guess, before you covered all of the causes. However, one thing I have found is that the bottom knife should be set parallel with the edge of the brass. If the knife is set too far back, it will let the stitches loop over the brass, which will cut the stocking.

I know that probably sounds like old stuff to a lot of your readers, but what of it? If it didn't do us good to hear and read over and over again a lot of things we already know, just look at the phonographs and picture shows that would soon disappear for lack of business. I heard of a man once who used to have some of his subordinates repeat things over and over to him again every day, so he would keep brushed up on them.

I think it would be a good idea for more of the readers to open up and tell about little things like this that they know. CONTRIBUTOR NO. 3414.

Among the Knitting Mills

Three Philadelphia manufacturers of women's seamless silk hosiery will install full fashioned equipment, and it is understood one will discard all of the seamless machines.

The Thomas W. Buck Hosiery Co., for some time operating a small full fashioned plant in one of the larger seamless mills in Philadelphia, will materially expand the former, and in preparation for the installation, is disposing of all but a few circular machines. Those to be retained were added but recently and comprise Scott & Williams New Model K 300 needle. The company, it is stated by an executive, has decided to discontinue the manufacture of juvenile wool hose.

Owen Osborne, Inc., whose lines of children's wool and cashmere hose have been widely known for many years, will add 17 full fashioned machines of 42 gauge for the manufacture of women's silk hose. The company expects to be shipping by early fall.

The Wallace Wilson Hosiery Co., it is stated by an executive, has contracted for several units of German Richter machines, and by January will be ready to make deliveries of women's full fashioned silk hose of 42 gauge, according to a person speaking for the company. Whether the seamless machines will be discarded has not been disclosed.

A shop devoted exclusively to the repairing of hosiery is being operated in Philadelphia by the Eastern Stelos Co., who are giving steady employment to 75 girls and intending to add 25 so soon as the work room has been enlarged. The menders use a needle with a latch, and having a guard needle, the latch and needle point being highly magnetized. Runners are the chief defect treated. As indicating the speed of an expert mender, one, with a record of 180 stockings repaired in a day, completely eliminated a full length runner in 2 minutes and 40 seconds. Numbers of small mills in Philadelphia—and some of the large ones as well—are extensive users of the Stelos company's service, and a few of the more important factories lease the device, which in no instance is sold, it is stated. Two large department stores maintaining a repair service also lease the needle. The Southern Stelos Co. operates in Washington, D. C., its territory embracing several of the southern states and the District of Columbia.

The following equipment is being installed at at the plant of the Shoaf-Sink Hosiery Mill Co., Lexington, N. C.: 20 additional knitting machines, two loopers, two sewing machines, and one 24-spindle winder.

The new plant of the Los Angeles Knitting Co., Los Angeles, California, is practically completed. The building is of saw-tooth roof construction, and is 150x150 feet, finished in brick.

Champion Knitting Mills, Chattanooga, Tenn., have begun the erection of a substantial addition to its present plant. The expansion plan calls for the expenditure of $15,000, and will provide an additional two-story building of brick and concrete, 60x80 feet. The Champion Knitting Mills specialize in the manufacture of novelty half-hose, and has a capacity of 1,000 dozen per day. The addition will be used for stockroom purposes. Clyde Wilkins is president and Walter Champion is vice-president of the company.

Twentieth Century Rayon Textiles, Inc., Petersburg, Va., has been formed by the merger of the Lubinette Knitting Mills, the Twentieth Century Knitting Mills, and the Lang Knitting Mills, all of New York City. The capitalization is $500,000. The plant of the Lubinette Knitting Mills in Petersburg will be used and enlarged, and machinery from the other plants removed to the Virginia city.

Fancy equipment is being installed by the Ashe Hosiery Mills, Knoxville, Tenn., which has trebled its capacity during the past year.

Chipman Knitting Mills, Easton, Pa., have awarded contract for the erection of a three-story addition, 105x106 feet.

Largman, Gray & Company, Philadelphia, have acquired a tract at Croydon, Pa., where they will erect a mill for the manufacture of full-fashioned hosiery.

Bennington Hosiery Company Bennington, Vermont, has completed the erection of a steel and concrete storehouse, 60x100 feet.

Middletown Knitting Co., Inc., Middletown, Pa., has installed ten new Banner machines, six ribbers and four loopers, giving it a total production of 1,500 dozen a week. Other machinery will be added.

A dyehouse is to be installed by the Paramount Hosiery Company, Houston, Texas.

The Yarn Market

Philadelphia, Pa., July 19th, 1926.

There is no gainsaying the fact that there exists at the present time in the Philadelphia cotton yarn market a better and more healthy situation than has prevailed here for some time past. The fundamental conditions underlying this improvement are to be used as a gauge, rather than the more obvious index of better business and more sales at profitable prices, which is usually employed for indicating a change for the better. For, in spite of the statement that things are different, there is very little of a definite nature, in the way of customary indications, to bear out this declaration.

Business continues to rock along in a routine manner, in other words, on the hand-to-mouth basis. Telegraphic and telephonic requests from yarn customers for supplies to fill in gaps and provide for business in their own hands are becoming a recognized and accepted method of trade transaction, as against the longer established method of getting consignments ahead on the enterprising salesman's order book. There has been some talk recently, in fact, of paring down on sales forces on the road in order to prune off some of the selling expense, this development being pointed out as a factor involved in the formation of this decision on the part of some.

Prices have continued their downward march, this statement being made on the basis of generally accepted quotations. As has always been the case, and as will be true forever and anon, however, there can be found every day certain transactions made at prices underneath the accepted list, because of particular conditions in individual cases that result in this deviation. And, equally true on the other hand, is the fact that where special quality or other special conditions are required, premiums are paid by the buyers to secure their wants—premiums, that is, above the quoted rates. It will ever be thus. At the same time, since the last report here, the rate list, generally speaking receded up until several days ago, when it exhibited a renewed strength and stiffened somewhat.

A definitely noticeable improvement in inquiry has become manifest for practically an entire month now. Some factors say this is in the nature of feeling out the market on the part of buyers, because no extraordinary business is seen to materialize as a result, transactions involving around 5,000 and 10,000 pounds being now considered as average sales. At the same time, however, dealers here declare that while this improvement, as a harbinger of more definite action, has been anticipated, it has arrived somewhat sooner than was expected, and this is pointed out as a hopeful sign.

During the past month, and more recently especially, the spinners division has displayed a firmness of attitude that is marked by some observers as courage. Their position has strengthened more or less materially.

As compared with last year, when the drought enforced a curtailment and necessarily reduced the size of stocks thereby, it is not felt that stocks at the spinning mills, or in this market, at the present time would, upon an inventory, assume proportions of a dangerous size. It is also felt that the jobbers' declarations of reduced stocks for retail distribution can be taken as indicative of a healthy situation there. Factors believe, therefore, that upon the heels of any material activity in cotton, consumers will desire to protect themselves further ahead than is their universal custom at present, and that the market will emerge into an improved condition fundamentally better as a result of the present situation.

There are others who feel that the situation in the cotton market at the present time will soon attract a bullish speculative interest which will be reflected also in cotton yarns, where money of this kind could be utilized as a factor for improvement.

Quotations on the Philadelphia market on July 16th follow:

Single Skeins.

4s to 8s	27	10s	28
12s	28½	14s	29
16s	29½	20s	30
24s	33	26s	34½
30s	36½		

Single Warps.

8s	28	10s	28½
12s	29	14s	29½
16s	30	20s	30½
26s	35	30s	36
40s	48		

Carpet and Upholstery Yarn in Skeins.

6s 3-4 hard white warp twist	26½ @27
8s and 9s 3-4 tinged tube	23
8s 3-4 hard twist waste	22

Two-Ply Skeins.

8s	28	10s	28½
12s	29	14s	29½
16s	30	20s	30½
24s	34	30s	36
30s	36	40s	47

Two-Ply Warps.

8s	28½	10s	29
12s	29½	14s	30
16s	30	20s	31
24s	34½	26s	35½
30s	36	40s	48

Frame Spun Carded Yarn on Cones.

8s	27½	10s	27½
12s	28	14s	28½
16s	29	18s	29½
20s	30½	22s	31
24s	32	26s	33
30s	35	40s	47
30s double carded	37½	30s tying in	34½

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	38 @40	20s	42 @45
24s	45 @46	60s	47 @50
40s	53 @56	50s	58 @61
60s	67 @72	70s	80 @83
80s	90 @93		

Single Combed Peeler Yarn on Cones.

18s	40	24s	43
30s	47	36s	52
38s	55	40s	57

Mule Spun Carded Yarn on Cones.

10s	33	12s	33½
14s	34	16s	34½
18s	35	20s	35½
24s	37	26s	38
30s	40	40s	50

Mule Spun Combed Peeler Yarn on Cones.

10s	42	12s	43
14s	44	16s	45
18s	46	20s	47
22s	48	26s	50
28s	51	30s	52
36s	55	38s	56
40s	61		

"Industry's Electrical Progress" is the title of an interesting publication issued by The Cutler-Hammer Mfg. Co., 109 12th Street, Milwaukee, Wisconsin. The author starts out to prove that the competitive advantages, which electric power brings to industry, lie in the effectiveness with which electricity is utilized. After showing that the consumption of electricity for industrial purposes has increased 3000 per cent since 1905, and almost doubled since 1921, the book points out the progres which has likewise been made in electrical equipment, particularly in motor control apparatus. Then it gives numerous examples of the accomplishments of correct motor control equipment. Many photographs of actual installations are shown. The Cutler-Hammer Mfg. Co. offer to send a copy to any one requesting it.

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The Knit Goods Market

Some few years ago when manufacturers of heavy weight underwear were seriously reckoning with overproduction, numbers of them began making sweaters, and the knitted outwear trades let loose a howl when they realized they soon might have to face keener competition and overproduction. The fear harbored then has been visualized this year more than ever.

With sweaters overproduced, and for the time not so popular except for sportswear, some of the farseeing manufacturers of the knitted coats hit upon the expedient of knitting golf hose to match, as one means for giving the sports sweater a new appeal and in addition swelling mill profits through a hosiery department. The business of manufacturing sweaters and hose to match has grown by leaps and bounds, and still is undergoing some expansion. Thus there is a new element wriggling its way into the hosiery field, already crowded to the fences.

Content with the business coming to them as manufacturers of bal briggan and ribbed underwear for men, most of these manufacturers woke up around 10 to 12 years ago to the realization that nainsook athletic suits were beginning to cut quite a swath in their sales, and they set out to stem the tide nainsookward. Meanwhile a few manufacturers of the knitted added nainsooks to their lines, which served to help along the very movement others were striving to check. The present year has seen several bal briggan manufacturers quitting the field and nainsooks scoring their greatest gain in a twelve-months period.

Ever since the world war that marked the beginning of a severe disturbance of the tranquility in our economic and industrial structures life for the major knitting trades has been just one thing after another, and the present year, with textile raw materials playing hide-and-seek with values, is not promising of marking the end of the excitement.

Hosiery

With about half of the summer ahead of them, distributors of hosiery are banking on sufficient of a bulge in their sales to more than offset the falling off in June attributable to nothing more or less than an anachronism in the weather. While what was lost in that month may have been made up in July, there still is a deficit in the year's volume to date to be wiped out as industry buckles down to work in earnest after the vacation, a period when expenditures for outdoor resort life run higher and earnings lower.

A study of production and distribution statistics for the first half of 1926, comparing with the corresponding period of 1925, discloses wisdom on the part of the hosiery manufacturing body in curtailing production by more than 20 per cent, and emphasizes the fact distributors are broadening their policy of buying for only nearby needs. Making comparisons with May, the last month for which trustworthy figures were available when this was written, at the end of the month this year the unfilled orders in the hands of manufacturers were for around 24 per cent less than on the corresponding date of 1925. This might be viewed as an alarming showing but for the fact there was a drop of only around six per cent in the month's shipments, while stocks in mills increased less than 10 per cent.

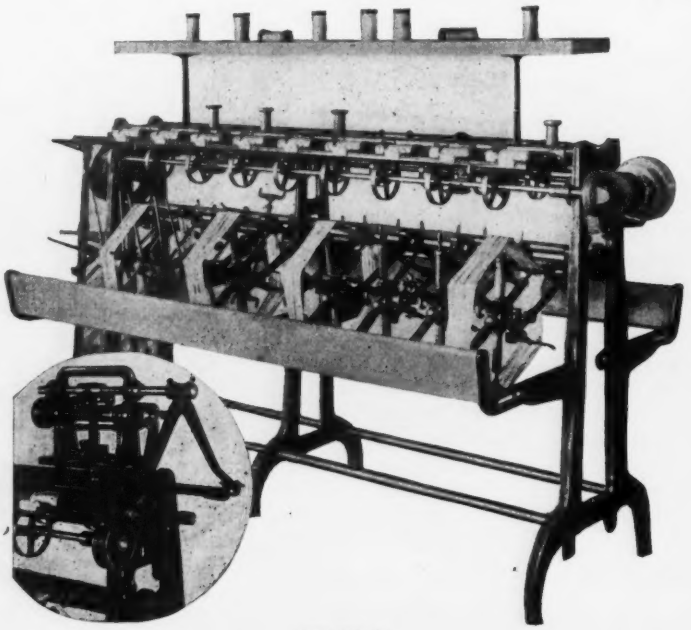
Curtailment was felt in practically all lines other than women's full fashioned silk, of which, apparently, there still is no surplus. Output gained in May over April, while in other lines it decreased, and it seems curtailment might with absolute safety be carried still further, for there has been no scarcity of hosiery of any description. The figures used for the several comparisons can be accepted only as indicating what has been the course of production and distribution, as they are a compilation from reports of manufacturers representing but about 65 per cent of the total output for the entire industry.

While production of women's seamless silk and silk in combination with rayon is lightly in excess of that for the first half of last year, that division of the industry has been hard hit. Numbers of Philadelphia seamless mills are idle or operating half time and less, and in Reading in the last few months four have discontinued business. A representative seamless mill in Philadephia was on a 50 per cent of capacity basis in July, while for the first six months of the year its output was 60 per cent of that of the corresponding period of 1925—and the managing executives feel they are faring better than most seamless manufacturers.

One development of the unsatisfactory situation is better seamless hosiery for the money. Several manufacturers, notably one or two mills in Reading, are plaiting one thread of rayon with four strands of silk for a dollar stocking, this 4-1 comparing with 3-1 a few months ago, which still is the leader in plaited hose for women, as a price proposition for distributors who distribute for profit while giving second thought to their business of the future. A 2-1 stocking is for the broken price bracket in which is found an all-rayon boot stocking weighing around 1¼ pounds to the dozen, and for which there is a good outlet, measured by the demand on one mill specializing in this type of hose.

There is seen occasionally in large stores featuring price a stocking with a full fashioned silk leg. A better proposition is the form fashioned hose, originally made from silk and rayon in combination, but now of silk foot and silk to standard width welt. The leg is knitted on spring needle machines and bartopped on a full fashioned foot. Retailers buying quantity, and at prices quoted to jobbers, can put it across the counter at a dollar a pair. In silk-and-rayon construction the form fashioned stocking has for a year or more been the leading seller of numbers of jobbers. This is the stocking which has called down on manufacturers putting it out under the name "form fashioned" the wrath of the Federal Trade Commission, for which, it appears, the Better Business Bureau for some time has been conducting an investigation. Testimony has been taken in New York, Boston, Philadelphia and several other cities. What the final outcome of all the flurry will be is a matter of conjecture, manufacturers and jobbers who have testified being divided in opinion as to the practicability of the use of the term, the chief objectors to which are, obviously, the full fashioned interests.

Seamless silk hosiery for women appears to be in the balance so far as its industrial permanency is involved, and seamless manufacturers are flocking to full fashioned notwithstanding repeated predictions production in that class is certain to be carried to the danger point. This prophecy is attracting less attention than might be supposed, as it has been heard many times in the last decade,



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and output has steadily increased, while having yet to overtake consumptive demand. Of a production of 7,886,308 dozen pairs of hosiery in the first five months of 1926 reported by manufacturers of full fashioned and seamless silk, artificial silk in combination with silk, and all-artificial silk, 4,623,609 dozens, or more than 58 per cent, were full fashioned.

While some important interests say they believe the next big development in women's silk hose will be in seamless lines, contending there is opportunity for radical improvement in circular machines and that the full fashioned have gone the limit in that particular, the fact remains that the outlet for full fashioned is broadening faster than is that for the seamless. Every department store and woman's specialty shop pushes full fashioned, many carrying no seamless, and this is true of a large part of the metropolitan stores. All of the direct-to-consumer sellers employing canvassers exploit the full fashioned, and now it is being sold in beauty parlors, so called, none of which, so far as known, is offering seamless lines.

The clientele of the beauty parlor is a full fashioned silk class, and it often is willing to pay higher prices than those in most stores. The institutions that thrive on the vanity of woman can have no great volume of business, but must carry assortments of colors and sizes, and have little opportunity to dump styles that were, so they must get a stiffer price or operate their hosiery departments on a very thin margin of profit. They get more, and do not permit a woman to run her fist through the leg of a stocking for inspection unless she has paid for it. They do, however, sell under an absolute guarantee, and a few of the more fashionable shops where homely women are made beautiful, theoretically, are known to have established a business of such dimensions as to arouse the envy of small retail shops.

Being for the time almost obsolete, women's black silk hosiery, particularly of the standard long welt construction, for months has been on the market at prices which meant a loss to manufacturers or others who overbought in advance of the silk-to-top vogue. This opened a rather profitable field for several concerns in the Philadelphia territory equipped for successfully stripping the black and redyeing in bright colors. This dual process is satisfactory when the characteristics of the black and the fabric are favorable to the treatment. Often they are not, but some very satisfactory work is reported, and there are instances of manufacturers getting $9 and more a dozen for stripped and redyed stockings which the original in black were hard to dispose of at more than $4 a dozen. The salvaging probably nets $3 to $4 a dozen for owners of good black hose.

Chiffon silks have been bought by some jobbers for fall distribution, and they are regarded likely to continue as one of the stronger staples. Yet there are intimations of a drift to heavier fabric, with seven strand silk likely to displace, to a considerable extent, the five strand. The seven strand conforms more closely to a general utility stocking, and there is one form of construction by which the medium service weight of seven strands appears none the less sheer than the five. As several manufacturers specializing in wool underhose have sold their production to early winter, it is apparent that in some quarters there is confidence in the sheer as a winter stocking for at least one more season.

Women's artificial silk hosiery for the popular price brackets, once one of the stronger items in hosiery, seems

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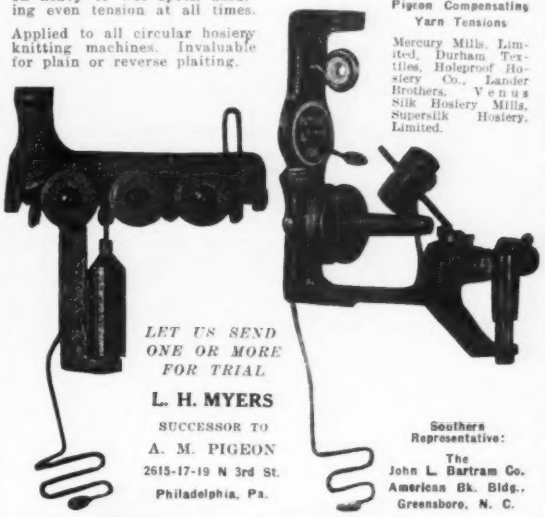

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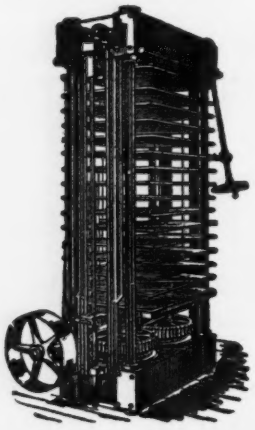

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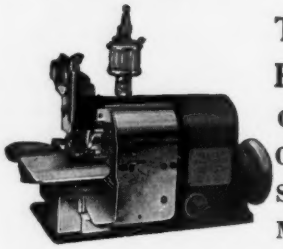

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to have been relegated to the sub class. Prices were unsteady for the months preceding the reduction announced recently by the producers of rayon, and so long as the downward revision was in prospect, distributors were disposed to put no rayon hose in stock. This forced further declines, and a month's production this year appears to be about 25 per cent less than for the corresponding month a year ago.

Buyers for the big jobbing houses have given juvenile hosiery for the 1927 season the usual once over, but according to reports anent the opening by manufacturers in July, they did not furnish many surprises in the way of contracts. The new price lists, showing substantial markdowns from a year ago on misses and boys lines, have been the cause of no adverse comment, it is stated by mill agents who have seen most of their representative trade. And as the new patterns and old ones which are retained are satisfactory, the stage is set for what is believed will prove one of the briskest years in children's hose in quite a while.

Infants sock prices came out simultaneously with the opening of juvenile hose generally, and also are lower, but except as to the higher grade goods, will cost the consuming public about current prices in retail stores. There will be a better margin of profit for distributors, and as jobbers have been complaining for some time of the difficulty of getting a satisfactory advance over cost, they may reciprocate by making their initial purchases more timely, from the mill standpoint.

Most of the infants sock mills need business. They did not have the customary flood of repeat orders this year and finished with their season about a month ahead of time. Some have given help and machinery a few weeks rest. Distributors represent they have had to carry some stock over, which they ascribe to weather procrastination depriving retailers of much of the business for which they had stocked.

Chain stores are heavy buyers of socks to sell at 20 cents a pair, and afford an outlet for much of what was left of 1926 goods in mill warehouses. But they will be a nickel under the popular retail price for the class of goods they will take over. This necessitated the bringing out of designs to sell at a quarter a pair regularly and pretty certain not to go to any of the chains. Such lines should command a trifle more than the trade ordinarily is willing to pay for quarter goods, particularly as the margin on higher price numbers is widened. Manufacturers have supplied goods that cannot but make an appeal, and, measured by value, prices are lower than a year ago by more than appears by mere comparison—a combination that is expected to make for the placing of the bulk of the season's business in August and September, when jobbers flock to the primary markets for the early fall campaign.

With misses ribbed hose in seven-eighth length apparently not so popular as a year or two ago, there is no little speculation as to the extent to which they may be displaced by shaped flat stockings for girls. If these shall supersede the ribs in proportion as some important market factors estimate, it is felt mercerized yarn will be used extensively for the popular price goods, and that silk will fill the higher price bracket, while the volume business will be in silk and rayon in combination. In respect to fabric, the situation is somewhat nebulous, and this is one explanation for the light trading at the opening of juvenile lines.

Fancy half hose for men is perhaps the outstanding item in the hosiery market from the standpoint of sustained interest and briskness. There is less of the gaudy for the current season, but some rather wild patterns in wool socks have been bought by retailers from manufacturers direct. While retailers' commitments with leading manufacturers are reported on a fairly liberal basis, it seems jobbers have operated for fall along more conservative lines.

Half hose for fall and winter, notwithstanding patterns will be no less popular than last season, will embrace plain colors with knitted in clocks which in themselves will be an innovation. Swiss embroidered clocks seems to be due for a comeback, as indicated by the business placed with establishments maintained for doing that form of clocking. The knitted clocks are an adaptation of the mechanical striping, and afford a wide field for variety. It looks as though they will immediately follow the polka dots, which have not produced the sensation that was looked for.

A few mills which ranked among the first this year to essay a revival of the polkas at once sold up their production. They employed the extracting process for producing the dots and appear to have gotten the cream of the business. Printed dots on black and navy soon made their appearance, and dealers saw the resurrected fad coming on the market so freely that there cropped out the fear it might be overdone, and bought ultra cautiously, with the result the dots have not made enough headway to cause excitement, and their duration as a craze is problematical. What appears a better guess is plain color split foot silk half hose, clocked.

Underwear

A representative northern jobbing house having a wide distribution of knit goods estimates that its sales of wool underwear this year will amount to less than 20 per cent of the average annual business up to 1914. Formerly this establishment each year disposed of many cases of light weight worsted shirts for summer wear All of that trade has disappeared, it is stated, and there does not remain a great deal of the business in winter weights. On the very conservative jobber purchases of cotton ribs for the coming heavy weight season it might be assumed the country was returning to the woolen garments.

The market for winter underwear has been unusually quiet, for even the between-season period, for many weeks. Contracting earlier was on a fairly liberal basis, especially so far as relates to substandard lines, but there has been less than the customary amount of duplicate business.

It was expected that with the opening of summer bal briggans and ribs last month, and the reported increased activity as between jobbers and retailers following the advent of seasonal temperatures, distributors would be in a better mood and place a reasonable part of the deferred business. But, while jobbers say there was a big jump in their shipments, they bought very sparingly of winter goods and not many placed even sample orders for light weights.

There were two reasons why jobbers saw fit to withhold contracts for bals and ribs for the 1927 season. One was, they clung to the notion there was a possibility of a recession in prices on possibly lower cotton and yarns. Linked up with this was the determination to get rid of present stocks, so far as that might be possible, before making commitments for goods for 1927 distribution. Besides, prices necessarily were lower than last year, and were it to become noised about that jobbers had bought, it was

feared many retailers would insist upon rebates from the prices which they have been and are paying for underwear for the current season. This almost invariably occurs in a declining market. The dealer who will pay advances when the market is rising has not been discovered.

The other major reason for distrust of knitted cotton underwear, as to 1927 distribution, was the apparent steady increase in sales of nainsooks and the ever present question as to how far they might affect distribution of the knitted. Taking the business of one well known jobber not in the larger class, but nationally known, the sales this year on one branded line, will be of more than twice as many cases as in 1923 and more than four times as many as in 1920. The jobbing house this year will pay the manufacturer of the line of nainsooks referred to about $125,000, probably more, it was indicated in an analysis of the orders to the third week in July.

Not many jobbers and not many lines of nainsook underwear may have had the increases scored by the house in question. Some may have had a greater gain. The figures seem sufficient, however, for indicating the rate at which the cut-and-sewed athletic union suits must be cutting into the business in the knitted under garments for summer. And it will not be overlooked that each year there is augmented buying of nainsooks for all year around wear, so that the knitted, in both light and heavy weights, is going through a period of severe competition aside from that which can be ascribed to excess production.

Considering the continued drift to buying only as demand develops, the disposition to wait for fairly tangible evidence of the approximate cotton yield, and doubt as to how far demand for knitted underwear may be affected by use of nainsooks, the failure of the opening last month for 1927 to attract more than a handful of buyers seems not difficult of explanation. The year's real activity will be seen in September, it is believed by numbers of factors, for then contracting for light weights cannot well be put off and merchants will have to strengthen their lines of winter wear.

So much business seems likely to be crowded into the late months that fear of a jam may bring buyers to market earlier than at this writing is indicated. Two successive autumns saw a scarcity of certain lines of underwear for immediate delivery. Neither manufacturer nor merchant would welcome a repetition of the confusion that then existed for a short time. But it will not have been averted unless buyers come to town very soon.

Further decline in the use of women's cotton underwear is indicated in the gradual elimination of mills which a few years ago were thriving and enlarging plants. In the Pottsville and Schuylkill Haven section of Pennsylvania there has been much idle machinery for some time. One well known mill in the latter town has been permanently out of business for some months and quite recently another, equally well known, turned off its last piece of underwear, the owners stating to some of their jobber patrons the plant never would be operated again. Disintegration in Pottsville, where much of the cheaper underwear was made, preceded the decline in the industry in Schuylkill Haven. By the end of the year, it is believed among manufacturers, other mills in the Schuylkill Valley, once as famous for its women's cotton underwear as the Mohawk Valley for woolen and cotton ribbed, will have given up the struggle with rayon and silk.

Most of the manufacturers who abandoned cotton and got into the rayon game a few years ago appear to be well established. Some gave up and others will, rayon being something which, to be made a successful venture in underwear, requires more patience—and perhaps capital—than is possessed by a goodly proportion of those experimenting with it. Not so many years ago the Progressive Knitting Mills (women's cotton underwear) was one of the better known industrial establishments in Spring City, Pa. The concern passed out some time before rayon came in. One of the company's executives was W. R. Britton. He has become a manufacturer of women's underwear and stated a week or two ago that the business is growing; that sales of rayon underwear and lingerie are increasing, and that, contrary to the experience of 1925, there has been little falling off in distribution for summer.

Knitted Outwear

It appeared from the reports of scattered metropolitan dealers last month that sweaters for women had staged a comeback. Certainly more of the garments were being bought by women for sports and resort wear than in the summer of 1925. White sweater coats are favorite for the present season, and in novelties the trend is to the conservative. Most dealers speaking of their sales emphasize staples, and these are the mainstay of the market for men's knitted sweaters.

Some of the manufacturers are having a small volume of repeat orders from jobbers, who, however, are giving only a comparatively few mills the support they should be receiving at the beginning of the delivery period. There are instances of 100 per cent capacity plant operation, but these are rare, and disclose a demand for certain styles that are in very much restricted production, and cannot by any means be accepted as a criterion among any great number of plants. A Philadelphia manufacturer selling direct to retailers reports for the year to July a production equal to about 70 per cent of that of last year for the corresponding period. This is far better than the average.

Sweaters probably will show a considerable picking up during the next six to eight weeks, and genuine activity to the end of the year—for some of the more favored mills—seems not improbable. This is the opinion of an important worsted yarn factor who in July made a personal closeup survey of the situation in scattered representative mills, and it is voiced by others.

Bathing suits are having the expected big season, although for a time the outlook was not so bright. A few manufacturers were, until the first week in July, operating plants overtime. Jobbers are making a cleanup, and some placed fair size orders last month when samples were shown and prices named by practically all manufacturers for the 1926 winter and 1927 summer seasons. It was observed by a manufacturer that "our orders seem longer since the bathing suits are being made shorter." In other words, abbreviated bathing togs encourage bathing.

The Grasselli Chemical Company, Charlotte, N. C., has recently increased its stocks of chemicals at the Charlotte warehouse by the addition of commercial sulphuric acid 66 degrees and commercial muriatic acid 18 degrees, it is announced. This new branch of the company was opened recently essentially for the purpose of serving directly the textile trade in the southern territory.